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Identifiers-*Head Start Evaluation and Research Centers

A summary of the research activities of 13 Head Start regional evaluation centers is presented in three sections: research on children, research on parents and families, and research on classrooms, teachers, and social organizations of Head Start centers. Studies are grouped under appropriate subheadings, such as "language" or "learning," and summarized. Investigators' names, the university at which the work was done, and the purpose, method, and results of the study, as well as implications for further research, are included for each project. An appendix supplies the address, director's name, and university affiliation of each Evaluation and Research Center. A table of contents of the final reports of the universities are supplied, as well as an author index to the actual studies within this digest. (MS)

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A DIGEST
OF
THE RESEARCH ACTIVITIES
OF
REGIONAL EVALUATION AND RESEARCH CENTERS
FOR
PROJECT HEAD START

(September 1, 1966 to November 30, 1967)

Prepared by: The Institute for Educational Development

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January 15, 1968

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Introduction

In the spring of 1966, the Division of Research and Evaluation for Project Head Start, through its Director, Dr. Edmund W. Gordon, announced its intention of establishing Regional Evaluation and Research Centers for Project Head Start. More than forty universities and colleges submitted proposals, of which ten were initially chosen on the basis of their demonstrated or potential abilities and competence in the following broad areas of research: methodological studies, learning and curriculum studies, socio-psychological studies, environmental and anthropological studies, medical and nutritional studies, and developmental studies of preschool children from deprived backgrounds. Later, three additional Centers were named.

On August 6, 1966, the Institute for Educational Development (IED) entered into a contract with the Office of Economic Opportunity (OEO-1410) to establish these Evaluation and Research Centers. The work of the Centers was divided into two parts: (1) to collect data for a national evaluation of the 1967 full-year Head Start program, and (2) to conduct research in the broad areas mentioned above. This report summarizes the research studies of the Evaluation and Research Centers.

The research of the thirteen Evaluation and Research Centers during the period of September 1, 1966 through November 30, 1967 is a unique and significant accomplishment in child development and early childhood education. Fourteen universities and many investigators focused upon major problems in the field and have made important contributions by developing needed instruments and conducting research in a variety of areas. The reports document that research in child development has moved out of the laboratory preschool toward the study of children from all socio-economic levels.

A few statistics reveal the extent of the work accomplished by the Centers, as well as the challenge which the Centers' reports presented to the IED staff members who worked on this final report. Each Center's report was submitted in an 8½"x11" volume or volumes. When these volumes from the thirteen Centers are placed on a shelf, they require 18" of space. The number of investigators whose names appear on articles is 102. These volumes and the 103 investigators represent 91 different pieces of research.

Among the disciplines represented by the investigators are: anthropology, education, human development, medicine and psychiatry, psychology, social psychology and statistics, social welfare, sociology, and speech pathology.

The final report consists of three sections and an Appendix. Section I presents research on children: major results, conclusions, and implications for further research and program planning; Section II contains research on parents and families; and Section III includes research on Head Start teachers and classrooms, and on the social organization of Centers. Wherever possible the investigators' own statements of their conclusions and the implications of their research are quoted form the Centers' final reports. In general, only one investigator's name is attached to any particular research report; the name used is that which appeared first among the investigators listed. The Appendix contains, first, a list of the thirteen Evaluation and Research Centers that participated with names of their directors,and second, tables of content. These give the titles of all research projects and the names of the investigators. Finally, the appendix contains an author index.

Complete copies of the final reports from each of the Universities are on on file at the Institute for Educational Development, and when permission for distribution of the reports has been received from the Division of Research and Evaluation for Project Head Start, they may be obtained on loan from IED, or directly from the Evaluation and Research Centers.

The titles of Chapters in Section I may remind one of those not so good old days when textbooks in psychology and child psychology followed a format similar to this; i.e., when discussions of sensation and perception appeared under the heading Sensation and Perception, when development of language was contained within a chapter called Language Development, and when there may have been a slim chapter titled Cognition, which included concept formation and thinking. In this, "The Cognitive Age," it may appear strange, "turned off," or even reactionary that the term "Cognition" does not appear as a major or even a minor heading in the final report. This omission has been deliberate. If by cognition we mean the ability to deal representationally with abstract concepts, then the whole of Section I could be titled Cognitive Development. Can it be that the terms "child development," "psychological development" and "cognitive development," have become synonymous?

The report contains eight chapters within Section I, Research on Children, moving from process to process from the most basic (attention, sensory and perceptual processes) to interrelationships among variables, and to results of intervention programs. Such an organization of the research projects reflects the varied purposes of the investigators: some of them focused on conditions under which children respond; others, on measurement of various abilities; some worked on training children under different types of conditions; and other investigators attempted to determine relationships among psychological characteristics of children.

In conclusion, the research phase of this initial year of the Project Head Start Regional Evaluation and Research Centers represents a notable achievement. This is especially true when one considers the problems of

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initiating programs of the size and scope of a national evaluation program and new programs of research. Many thanks are owed to Dr. Edmund W. Gordon and Dr. John W. McDavid, successively directors of the Division of Reserach and Evaluation for Project Head Start, in facilitating the initiation and implementation of the Evaluation and Research Centers and to the Center directors who cooperated unstintingly in making the program a success.

SECTION I

RESEARCH ON CHILDREN

CHAPTER I

ATTENTION, SENSORY, AND PERCEPTUAL PROCESSES

This chapter reports research carried out at four different universities. The purposes of the study on attention were to shape bidimensional attention in children aged two through four years and to determine if there are social class differences in developmental trends.

Six studies were concerned with the development and measurement of sensory and perceptual processes. Several new instruments to measure visual and auditory perception were developed. The investigators expect that some of these instruments will, after further refinement, serve to detect factors related to reading difficulties.

Investigators in one study analyzed the influence of testing conditions during learning of discrimination tasks. Another researcher examined stimulus preferences (color, form, size), the relationship of these to cultural differences, and the changes in preference as related to specific patterns of socialization.

Attention

Watson et al (MSU and Merrill-Palmer Institute) wrote:

> Existing data at most support a contention that children younger than seven years of age normally employ unidimensional attention in non-instrumental discrimination tasks. Whether this tendency toward unidimensional attention is also normally dominant in instrumental discrimination tasks is not yet empirically supported. Even if it were to be found that unidimensional attention is a normally dominant response tendency across both instrumental and non-instrumental discrimination tasks, an important question would remain as to whether multidimensional attention is beyond the functional capacity of the young child or if it is rather a response which can be learned under appropriate conditions.
>
> The present study is an attempt to shape bidimensional attention in 24-month-old Ss (N=36) within a sorting task involving objects which vary on the basis of two levels of the dimension of color and two levels of the dimension of form. ... The results provide one rather clear and important implication. By the age of 24 months, some children are quite capable of performing a bidimensional sorting task - at least this seems clear within the stimulus and reward context employed here.... It is not clear whether the limited number of Ss showing bidimensional attention in the present study is a sign that this response is yet rare at 24 months of age or whether the limited number is an artifact of a failure to obtain and maintain sufficient involvement in the task. However, the performance of the 4 Ss who did master the bidimensional task is certainly ample to imply that bidimensional attention is an available response for some children long before their seventh year.

In a follow-up of the above experiment, the investigators extended the age range and examined the possibility of there being social class differences in developmental trends. Subjects were Negro children of three age periods: 2-1/2, 3-1/2, and 4-1/2 years of age.

> The results of this experiment appear to show very little effect of the social class variable. The data are not supportive of any contention that the effects of class status tend to become manifest at about 3 years of age. However, it appears that both the 3-1/2 and 4-1/2 year-olds found the task very easy and this ceiling effect may be masking existing class differences. This rapid mastery by the older two age groups was not at all expected. The quick shift in ease of bidimensional sorting between 2-1/2 and 3-1/2 years of age is viewed as an important and intriguing developmental finding.

Sensory and Perceptual Processes

Pupillary Constriction

For several years, Holmes (University of Texas) has been studying the speed of pupillary constriction and its relation to psychological phenomena. Results from these studies led him to design the research reported here,"to evaluate the relationship between neural conductivity, as inferred from a pupillary response" and preschool children's scores on the Stanford-Binet and the Caldwell-Soule Preschool Inventory. The investigator reported the following:

> Due to the difficulties with the apparatus which resulted in the extremely small sample, it is impossible to draw any conclusions from the present data. Some of the results verge on being "suggestive of trends" consistent with the hypothesis [that subjects with faster constriction would show superior test performance] but unfortunately, this is the most that can be said at the present time. This experiment has provided a promising pilot study and should be pursued in the following year.

Visual Perception

Gotts (University of Texas) studied visual perception among 30 Head Start children and wrote:

> Because visual perceptual readiness is . . . crucial to reading development, one might wonder to what extent the reading difficulties of psychosocially disadvantaged children are related to poorly developed visual recognition skills. The present study was planned to examine the "relation of identity" during tachistoscopic presentation. . . of visual stimuli, which could be discriminated only on the basis of shape and spatial orientation...... A criterion instrument of form perception accuracy, the Visual-Analytic Skills Test (VAST), has been developed and field tested as a part of the study.

Thirty children were individually pretested by showing each child (in the window of an individual reading tachistoscope at 1/10 second exposure time) India ink drawings of objects which were on display in his classroom. When the settings at which the child succeeded and failed were determined, the VAST was administered. The pool of children were rank ordered on the basis of error scores and divided at the median into low and high groups. One-half of the children from each group was assigned randomly to the experimental and control conditions. The experimental subjects received six ten-minute instructional sessions in which they tachistoscopically viewed the India ink drawings.

Results showed that "the experimental treatment used with these Head Start children was clearly ineffective in producing visual discrimination accuracy gains over an 8 - 10 week period....

> It is interesting to note (there were) overall gains. . . for both groups. One may wonder whether these gains were an indirect result of Head Start experience. Since comparable data are not available on a non-Head Start control group, alternate interpretations cannot easily be eliminated, e.g., that spontaneous perceptual growth is occurring during this time. The relatively high stability coefficient might, in fact, favor a developmental interpretation of the VAST error reduction. In this connection, it should be noted that VAST pre-and post-test errors were consistently negatively correlated with MA and IQ on the Stanford-Binet (r= -.4748 to -.6313) and with the Developmental Scale of the Preschool Inventory (r = -.5705 and -.6859)....
>
> It would seem unprofitable to pursue further the kind of treatment used in this study with Head Start children. Future studies might concentrate on providing geometric-object manipulation experience as more promising for the initial learning of perceptual units.
>
> [Since] fairly consistent, significant, and moderate relations were obtained between VAST error scores and other indicators of development... [and since] the VAST seemed relatively sensitive for detecting changes occurring in Head Start children during their initial training experience.... additional studies of the VAST as a possibly useful indicator of development in preschool children would seem to be justified. Simultaneous administration to a non-Head Start control group would permit a decision about whether Head Start experience is in some way responsible for the observed gains.

Auditory and Visual Discrimination

Stern noted that the program at UCLA provides for two types of evaluation: summative and formative, summative looking primarily at the terminal behavior, and formative at the ongoing process by testing each phase of the instructional program while it is being developed.

> For the first type of evaluation, two traditional instruments are being used, the Peabody Picture Vocabulary Test and the Goodenough Draw-A-Man Test. In addition, several new instruments are being constructed.
>
> The first of these is a measure of auditory discrimination which avoids a critical weakness in existing instruments of this type. In many tests, the child's ability to discriminate sounds is measured in terms of how well he can classify pairs of auditory stimuli as either the "same" or "different."

Culturally-disadvantaged preschool children find this task very difficult. A test which involves the comparator function will have low validity insofar as scores reflect the child's level of ability to understand the instructions rather than to discriminate the stimuli. The Children's Auditory Discrimination Inventory (CADI) uses 38 pairs of pictures. One of each pair represents a familiar object, called by its appropriate level; the other is a nonsense picture to which a nonsense di-syllable has been arbitrarily assigned. The child is told the names of the pictures by the examiner, and then given the stimulus to which he is to respond.... On the whole, an equal number of real and nonsense words are called for, but in random order. The words selected were based on a hierarchy of difficulty of phonemic contrasts, ranging from exceedingly gross discriminations (e.g. girl - hujuj) to minimal pairs (e.g. fish - fith). The real words and pictures have been pretested with a comparable population and found to be well within the children's response repertoire. The nonsense stimuli were selected from those rated low in association value in a study with a similar population.

A second instrument, the Visual Discrimination Inventory (VDI), is concerned with the assessment of the child's ability to discriminate visual stimuli. Most available tests of this skill require the child to produce a written response which usually demands a high order of motor control. Again, the measure of discrimination is confounded with the irrelevant characteristics of the response made. To provide a more valid test of discrimination the VDI requires the child to indicate his ability to discriminate forms by making a simple selection response. The four areas under which the tasks are subsumed are: form constancy, figure-ground, closure, and position-in-space. There are 52 items in the test, which takes approximately ten minutes. The VDI test was administered to 291 children, Negro and Caucasian, in age groups 3,4, and 5, and 2 levels of socio-economic status. Two measures of internal consistency, Spearman-Brown r = .91 and Kuder-Richardson r = .88, indicate an acceptable level of reliability. Analysis of variance showed significant main effects for age and race. Low positive correlations with mental age indicate a minimal intelligence component....

> These two tests are included in our evaluation battery because there is a pervasive belief, based on what may be termed a commonsense validity, that the way children discriminate sounds and forms is closely related to the acquisition of reading skills. While there is ample correlational evidence that good readers are more apt to be good discriminators and poor readers poor discriminators, there have been no successful experiments to demonstrate that improving performance in discrimination will also improve performance in reading. After sufficient normative data have been gathered, and the reliability of the instruments established, a number of experiments will be designed to test the hypothetical relationship between beginning reading and auditory and visual discrimination....
>
> To summarize, the use of the UCLA instrument has demonstrated its usefulness in identifying a range of ability in visual discrimination with several population groupings. Additional work is now being done to develop the four subtests as measures of component elements of a broad visual discrimination ability.
>
> Large pools of items are being administered over a broad population of children. The data will then be subjected to factor analysis to identify the most sensitive items and those which have minimum overlap. It is expected that a strong and reliable measure of visual discrimination, which can be used with young children from a wide range of socioeconomic backgrounds, will be developed. It is hoped that this type of measure, given as a routine test at the kindergarten or first grade level, will identify children who may be expected to demonstrate a wide variety of problems in dealing with the environment. Of major importance will be the potential ability to predict cases of incipient dyslexia, as well as other learning disorders, before they have become severe enough to be obvious to the classroom teacher.

The purpose of a research project by Hall et al (Syracuse University) was to investigate the influence of five variables (initial instructions, motivation, warm-up condition, letter size and feedback) on the performance of a letter discrimination task by kindergarteners. It was believed that such knowledge would help ascertain the proper conditions under which reading readiness tests should be administered and provide new information as to what age children typically exhibit the ability to correctly identify letters....

The investigators presented the following discussion of their results:

> There is little doubt that the results of this experiment indicate that letter size is not an important factor with kindergarteners. In all cases performance on both letter sizes was almost identical....

> The picture with motivation, warmup and feedback isn't that clear cut. It is, of course, obvious that warmup condition is more important than the motivation factor in the sense that when children are unaware of what the correct answer is, no amount of trying will help. . . .
>
> The real importance of the study is that it indicates the performance of a young child in this kind of task is highly dependent on the testing conditions. Regardless of statistical significance, it is evident that there were probably a number of individual children who were misclassified as being incapable of discriminating letters by Davidson.
>
> The authors believe they have demonstrated that it would be well worth the time of any test constructor interested in validating criterion referenced tests to do some preliminary investigations into the proper conditions under which the test should be administered.

Stimulus Preference

Spellman (University of Texas) studied stimulus preference (form, color, and size) of Head Start children from different ethnic backgrounds (Anglo, Negro, Indian, Spanish, and Mexican-American).

> There are significant differences between cultural groups in terms of stimulus preferences. This means that members of different cultures come to school with different sets for stimulus discrimination. But within these groups there are some individuals who have a preference for form and a higher mental age than the rest of their group, and that is because they have already begun to experience what the others will experience within a year -- certain kinds of learning which depend on form choice. That there are true cultural differences in stimulus preference is reinforced by Colby & Robertson's study where mental age made no difference....
>
> It seemed reasonable to hypothesize that the children who entered school for the first time in September would, by the end of the same school year in May, reveal a shift toward more form preference. This shift would be a result of the child's attempts to accommodate classroom learning experience. The Ss chosen to test this hypothesis were [from three cultural groups, tested in October, and retested eight months later].
>
> There were statistically significant shifts in the predicted directions for Anglos (.05) and Negroes (.01). The Indians, however, made a shift from essential neutrality to a preference for color, and although not significant (p = .15), was deviant enough from the hypothesis to warrant comment.

Perhaps the Indian result can be expected upon the basis of prior cultural learning. One tentative explanation may be that these Ss, already withdrawn, become even more so during the school year and thus do not enter into the learning experiences. The differences in culture may be so great that these Ss are not fully integrated into classroom activities.

Another possible explanation may be found in thinking of color preference as indicative of an expressive personality .... Children at an early age are color-oriented and simultaneously express themselves freely. They are the ones who make the shift to form when circumstances dictate it, as in school. It may be that the Indian children were reared in a more restricted environment and were not allowed to express their feelings openly. (Persons who have worked closely with Indians report that this is emphatically true.) They thus become form-oriented at an early age. When in school for the first time, they are encouraged to express themselves freely as well as apply themselves to learning form discrimination. Unlike the other children, who have always been able to express themselves, the Indian children find that in the classroom it is intrinsically more important to express themselves (and be color-oriented) than it is to engage in the more serious classroom material (and be form-oriented). This hypothesis can be tested by acquiring measures of stimulus preference at an earlier age. If correct, then one will expect to find young preschool Indians preferring form while same-aged Anglos and Negroes are preferring color to a greater degree than form. It is also expected that the same Indian children will reveal a shift to form in their second year (first grade) of school.

The reported results indicate that stimulus preference cannot be explained satisfactorily simply by positing a fixed course of cognitive development. Rather it seems that a more logical conclusion is that stimulus preference indicates exactly that: a preference or perceptual style. From the consistency of the responses found within subcultures, it seems apparent that stimulus preference is a characteristic of personality, developed through specific patterns of socialization.

CHAPTER II

CONCEPT IDENTIFICATION

AND

CLASSIFICATION

Researchers at two universities worked on concept identification and classification, respectively. In one study the focus was on the effects of stimulus complexity and stimulus uncertainty in concept identification tasks in children of two different age levels. On the basis of their results, the investigators plan to modify their experimental design and to broaden their sample to include culturally deprived and middle-class children.

The investigation of concept classification was concerned with ways in which lower-class Negro children classify objects, effects of different kinds of training procedures upon classification, and transfer of the newly learned skills. Suggestions for further research include investigations of sex differences in pattern of response, stability of the results of classification training, and the relationship between training outcomes and other intellectual areas.

One investigator developed a new test to measure classification, sorting, and related cognitive skills associated with inferential reasoning. This test is described in Chapter V.

Concept Identification

Concept identification strategies were studied by Meyer et al (Syracuse University) "to determine age differences in the effects of memory load on CI (concept identification) tasks at varying levels of complexity."

> The fact that older children seem to spontaneously categorize stimulus information to a greater extent than younger children ... suggests that less of a memory load is placed upon the older Ss; that is, failure to categorize requires the S to recall the association between each separate stimulus and the correct response, while categorization of stimuli requires only that the S recall the association between a combination of stimuli and the correct response. Thus, it seemed plausible to expect that a reduction of the memory load required by the task would be of greater benefit to the younger than the older children. A corollary of this hypothesis is that reduction of the Ss's memory load would reduce responding to the irrelevant stimulus dimensions of the task for all age groups but to a greater degree for the younger as opposed to the older children....

Ss were 108 kindergarten and second grade boys and girls from the lower-middle class and with average intellectual ability. Concept identification tasks at three levels of stimulus complexity were constructed. Each level required the identification of one relevant concept; complexity was varied by including either 0, 1, or 2 irrelevant concepts. The basic design was a 3 x 3 x 2 fixed effects model varying three levels of complexity, three levels of memory load reduction, and two grade levels (K or SG). All Ss were run individually.

The investigators concluded:

> ... there is support for the conclusion that concept learning is adversely influenced by higher levels of stimulus uncertainty. The conclusion is further warranted that younger children are more adversely influenced by higher levels of stimulus complexity than older children....
>
> In view of the subject variability encountered in this study, we plan to change the design.... Essentially the revised design is a 2 x 2 x 2 with two levels of stimulus complexity, two levels of memory aid, and two age levels.
>
> Another modification [of the procedure should make it] possible to counteract response preferences and ... to partial out the effects of stimulus preferences... Finally, we are planning to use 'culturally deprived' children in our sample and compare their performance with another sample of middle-class children.

Classification

Sigel et al (MSU and Merrill-Palmer Institute) studied aspects of classificatory behavior and focused upon the following questions:

> (1) What modes of classification are employed by lower-class Negro children when faced with arrays of three-dimensional familiar objects and with representational instances of these objects? (2) What training procedures and what class of materials will be most effective in inducing change in classificatory and representational behaviors? (3) If increased competence is in fact achieved, are these newly acquired skills transferred to other tasks, particularly representational kinds of behavior? . . .
>
> Each child was given a [pre-post] battery of tasks which included the Object-Picture Categorization Test, a Haptic Test, and the Motor Encoding Test [from the ITPA] . . . . The Object-Picture Categorization Test is a sorting task made up of two parts, an Object Test (OCT) and a Picture Test (PCT). Twelve familiar three-dimensional, life-sized items are involved, e.g., ball, cup, spoon, etc. In OCT these items form the test, while in the PCT life-sized colored pictures of these items are used.
>
> For the OCT and the PCT identical test procedures are used. Each test involves an Active and a Passive Condition. The Active Condition task requires the child to select from an array of objects all those items he judges as similar to the stimulus object selected by the experimenter and provide a reason for his grouping. The Passive Condition requires the child to label arrays of objects made by the experimenter. . . .
>
> The responses are scored so as to obtain three types of information: ability to group, quality of verbalization, and the basis employed in grouping. In this report the focus will be on grouping responses, those responses giving meaningful relationships between all the items selected, and scorable responses, those in which all the items selected are not included in the answer or the relationship given is incorrect. A third emphasis will be upon the bases of grouping, i.e., the content of verbalization involving three categories as follows: descriptive, relational-contextual, and categorical-inferential.
>
> Descriptive responses refer to those types of statements denoting physical palpable cues which are used as the basis for classification (color, form, structure). . . .
>
> Relational-contextual responses are of two types; thematic, where objects are related in terms of a story or theme or use, where objects are related in terms of their interdependent function. . . .
>
> Categorical-inferential responses refer to those which are traditionally referred to as class labels or concepts. The label refers to an array of items, which although appearing different, are members of the same class. A formal definition is that for every instance of the array the class label can apply and is not observable. . . .

> The Haptic Test is made up of ten geometric and ten realistic objects. The aim of this task is to assess the ability of the child to identify form through tactile cues only. Seated behind a screen, the child is handed a stimulus object which he is asked to identify. Identification is assessed by having the child select the form from an array of forms. Thus the child has to translate tactile cues into perceptual recognitary ones. The accuracy in the identification task, the time taken to make the identification, as well as the kinds of searching movements used are recorded....

Five training groups and a no-treatment group of inner city lower class kindergarten children were used. The training groups reflected the investigators' hypotheses concerning effectiveness of types of materials: 1) trained with objects alone; 2) trained with pictures alone; 3) trained with objects and pictures; 4) verbal experiences; 5) role playing, in which children spent time acting out real or imagined roles of animate and inanimate objects. Since teachers were the trainees, children could not be assigned randomly to groups; instead, schools were randomly assigned to each of the training situations.

The investigators presented the following discussion of their results:

> The results indicate that classification training does enhance the child's ability to employ grouping and scorable responses, as well as increase the variety of criteria by which to classify. Exposure to verbal experiences and role playing did not significantly alter classificatory skills.
>
> Is the effectiveness merely a transfer effect, where the post-testing condition is very similar to the training? It should not be forgotten that the materials used in the training differed from those in the Categorizing Test. Also, the activities employed in training were very different from those in the formal test situation. Thus, the children demonstrate an ability to apply their newly acquired knowledge to a formal test situation, differing in content and task demands, attesting to their ability to generalize. This is indeed a goal of the training.
>
> To be sure, the identical task was used in pre-and post-assessment. That the results obtained are not due to practice effects is demonstrated by the nonsignificant change among the non-classification training groups. The increase in grouping and scorable responses can not then be explained as a function of practice.
>
> The results of the Passive Condition in the Categorization Tasks should also be kept in mind. Here the children were required to seek relationships of preconstructed groups. The fact that they could relate all items is an important step forward. That they used relational-contextual groupings along with color responses indicates an ability to seek out functional relationships -- a criterion used infrequently in the Active Condition.

Finally, the increase in variety of styles of categorization reflects an increasing ability to employ alternatives. This move away from a limited single emphasis suggests that the children can and do seek alternatives -- perhaps a step toward flexibility.

It can be concluded that the type of classification training employed in this study is a means by which classificatory skills can be induced.

Of particular interest is the fact that a guided discovery teaching strategy was used with these lower-class Negro children. Evidently they do have a repertoire from which to build. Providing them with an appropriate environment for utilizing already established skills seems to enhance acquisition of additional knowledge.

In addition to cognitive gains, the teachers report that children in the CT groups showed increased verbalization in the classroom, evidenced a more positive attitude toward school and showed greater interest in their school environment. They also asked more questions about objects and events in their surroundings. These gains were not reported by the teachers of the verbal-interaction and role-playing groups....

The object-picture discrepancy is another major interest of the project. It will be recalled that no significant change in the size of this discrepancy was found for grouping responses. However, significant decreases in this discrepancy were found for scorable responses. The object-picture discrepancy referred to above is consistent with previous findings (Sigel, Anderson, Shapiro, 1966; Sigel, McBane, 1967). In view of this replication, there is little doubt as to the validity of the phenomenon.

None of the training conditions in this study, however, could significantly reduce the size of the discrepancy for grouping responses. Since the children were exposed to pictures and to objects, separately and in sequence, it was surprising to find no reduction in the discrepancy. It could be argued that the discrepancy is due to the fact that objects and pictures represent two classes of stimuli and thereby provide different sets of cues. Granting there are these differences, there is reason to expect consistency across such stimuli, particularly when they are representative of the same content. Middle-class children of preschool age do not show this discrepancy (Sigel, Anderson, Shapiro, 1966; Sigel, McBane, 1967). Also, Sigel found no difference for older lower-middle-class children (Sigel, 1953). The results of these previous studies point to the uniqueness of these findings for lower-class Negro children, suggesting the discrepancy may well be due to cognitive deficits and not to differential cues in the two sets of stimuli. For lower-class children, mode of representation makes a difference. The reason for this phenomenon is unclear, and all that can be offered at this point is speculation.

To treat objects and their representative counterparts as equivalent requires a concept of the object and an awareness that objects can be represented in any number of ways. Since the children could apply the appropriate label to the picture indicates that on the naming level the children recognize the item. Why, then, does this knowledge not permeate classification behavior? Since naming is not enough, what is? Theoretically, it can be postulated that the child does not have the schema of the object--he needs a greater range of cues in order to use the object when represented pictorially. Perhaps more salient, again theoretically, is the child's lack of competence in symbolic and representational thought in general--herein manifested in this particular set of behaviors. How significant are these types of behaviors in the lives of these children? How much symbolic and representational thought is found in their environments?

Answers to these questions may reside in further study of the symbolic environment of these children. If the adults create an environment which tends to be nonsymbolic, it is not surprising to find limited symbolic competence among the children. Examination of the linguistic environment of these children with particular emphasis on the quality of language used, may well provide some answers. This will require more details of linguistic interaction than suggested by Hess and Shipman (Hess, Shipman, 1965). One should examine the frequency with which parents employ such things as relational terms, qualifiers, referents to the non-physical. Among these may be the type of language units that are lacking in the lives of these children. But more important is the quality of even such seemingly abstract terms--are they sufficient to help foster an abstract attitude.

Search must be made of the relevant cognitive dimensions as they are embedded in a more complex personal-social system. Categorization requires an ability to objectify, to disengage relevances, etc.--behaviors closely allied to the affective domains of the person. Further, the requirement to acquire a concept of the object, thereby identifying it under various guises (pictorial, linguistic, etc.) may be a function of these larger issues.

The significance of the findings of differential classificatory behaviors with objects and pictures may rest in the identification of the broader questions regarding the requisites for dealing with symbolic materials at all levels. It may well be that the answer lies in some integrating mechanism, the creation of organized wholes. Other training procedures than those employed here are necessary. Perhaps, with the type of classification training used in this study as a basis, additional experience indicating relationship between different forms of the same item would enhance symbolic competence.

That scorable responses increased as a consequence of training should be no surprise. The CT group did have considerable experience in labeling and giving descriptive statements about objects. This is in fact what most scorables are, posing little challenge to classification skills.

Obviously, just verbalization is not the key, since the verbal interaction group did not increase significantly in the number of scorable responses given. It apparently has to be verbal interaction in a structured context. This describes the CT condition--discovery within a predetermined system. The child had to focus on materials at hand which restricted the range of choices he had. Granted the items are complex--having multiple attributes--still there is a limited number of object characteristics. The children then have a frame of reference within which to search. This aspect of the training should not be overlooked as a significant factor contributing to the outcomes of the study.

A number of other issues arise from this study that need further investigation. Among these are the sex difference in response patterns, the stability of the training outcomes and their relationship to other intellectual areas.

If, however, the significance of classificatory skills is granted, then this project has contributed a procedure which is practical and can be implemented in the kindergarten.

CHAPTER III

LANGUAGE

Work on language was extensive and investigators at eight universities concentrated on various aspects of this area. Several investigators focused on the problem of measurement and developed new instruments, some of which are in the process of revision. The projects included: an analysis of the Illinois Test of Psycholinguistic Abilities; the development of a battery for measuring bilingualism and bicultural socialization in young children; an instrument to analyze the effects of variation in mode of presentation of picture or object in studying the vocabulary and articulatory responses of preschool children; one researcher developed new instruments (1) to obtain language samples, (2) to evaluate ability to respond appropriately to verbalizations (3) to measure the range of sentence complexity with which a child is familiar, and (4) to measure vocabulary and verbal output.

There were studies of language structure and its effects upon cognition; work on the derivation of vocabularies of different cultural groups; an attempt to scale the degree of cognitive difference between cultural sub-groups; development of a method to determine how a child organizes speech input into linguistic segments; and research on comprehension of verbal instructions as a function of certain aspects of grammatical structure.

Two researchers investigated the effects of dialect upon language acquisition, and another examined the relationship between language habits and attitudes. A report of non-verbal representation completes this chapter.

Several other studies relating to retraining of speech in young children, to verbal imitation, and to verbal fluency are described in Chapter IV, under "Reinforcement." Research concerned with the effects of language intervention programs upon scores on tests of intelligence and language and upon school grades is included in Chapter VIII, "Intervention Programs and Their Results."

Tests of Language Development

Several of the researchers point up that the lack of appropriate measuring instruments has been a major concern among psychologists who have been involved with Project Head Start. During this year, several of the Evaluation and Research Centers concentrated at least part of their efforts upon evaluation of existing instruments and upon development of new ones.

The Illinois Test of Psycholinguistic Abilities

Within the area of language functioning, Beller (Temple University) wrote:

> It has been generally accepted that language development is one of the crucial problem areas in the education of lower class disadvantaged children. We were therefore particularly interested in finding a test of language functioning which would enable us to diagnose weaknesses and strengths in our children as they enter preschool and to evaluate the impact of preschool education and of special programs on the language functioning of these children. The Illinois Test of Psycholinguistic Abilities (ITPA) is the most elaborate instrument available for the assessment of language functioning in children. Since it has been constructed for diagnostic and remedial use with children handicapped in the language area, it was particularly well suited for our work. One of the important requirements for a language test to be useful to us was that it yield more than a global estimate of the child's language ability . . . . We wished to establish for ourselves that the various subtests of the ITPA actually did measure different aspects of language functioning which were not highly correlated with one another . . . .
>
> Test findings with our own group of children . . . show that indeed all the nine different sub-tests represent separate factors. We could thus be assured in any further use of these test findings that we were working with an instrument which tapped a number of different aspects of language functioning in our children.

> Our study of the language functioning in disadvantaged preschool children entering nursery showed that our children were approximately eight months behind in their language development . . . . Our children perform quite consistently below average on seven of the nine subtests [of the ITPA] which tap a wide variety of language functioning. It is interesting to note that the subtest (Auditory-Vocal Automatic) on which our children perform poorest, is a test which measures routine mastery of grammatical language usage. At the other extreme, our children perform at least as well if not better than is to be expected for their chronological age on the Auditory-Vocal Sequencing Subtest, which involves rote memory. The value of these findings lies not only in that they reveal the level of backwardness among disadvantaged lower class children of preschool age, but more importantly in pinpointing the specific area of greatest weakness and the area of greatest strength. It would be most interesting to put these findings to further use in curriculum experimentation. For example, would these children benefit most from special training in the area of their greatest weakness, that is, the routinized and automatic use of simple grammatical rules? Moreover, would these children benefit most from building such language mastery with a method reflecting their greatest strength, that is, rote memory? Whether one uses these or some other courses of action, it is clear that the data presented . . . promise to provide a good basis for initiating experimentation in language training with disadvantaged lower class children of preschool age.

Multi-Modal Articulation Analysis

Irwin (University of Kansas) pointed out that in studying the vocabulary and articulatory responses of preschool children, pictures or objects are used as stimuli to elicit speech, but that there is little experimental evidence concerning the effects of variation in the mode of presentation of the picture or object. Irwin studied the effects of (1) item recognition, (2) response latency, (3) articulatory accuracy, and (4) subject preference of the following four modes of presenting the test stimuli: (1) actual objects, (2) color transparencies, (3) color prints, and (4) black and white prints .

> Form I of the Multi-Modal Articulation Analysis was used. This test consists of 112 one-word items selected (1) for frequency of occurrence and (2) for including collectively the vowels, diphthongs, consonants and common blends of American English in their usual phonetic positions. Four complete versions of this test (object, color slide, color print, and black and white print) were available . . . .
>
> This project has been analyzed primarily in terms of the testing media . . . Mode of stimulation did not affect the variables studied, but the marked preference of the [Head Start] subjects was for the actual object. The performance of the children improved generally with age on the measures taken. Sex differences were not significant at these ages [four years six months through five years three months] on these measures . . . .

The Multi-Modal Articulation Analysis is being revised and will then be administered to a series of population samples.

Tests of Bilingualism and Bicultural Socialization

At the University of Texas, Cervenka developed a battery instrument, Tests of Bilingualism and Bicultural Socialization (TOBABS), for measuring child bilingualism and bicultural socialization.

> The instruments developed are intended to serve two purposes: (1) as research instruments which can be used in the empirical investigation and evaluation of bilingual educational programs, and (2) eventually, after multiple administrations of the instruments have been made, as standardized tests which can be used by administrators and teachers concerned with the development of bilingual education in the Southwest. This latter purpose has placed several limitations on the type of instruments to be developed. First, the instruments had to be such that they could be administered and scored by personnel normally present in school. A requirement was acknowledged that no specialized training would be required

for their administration and use. Second, this limitation meant that no electronic recording apparatus would be used.

TOBABS includes three sets of instruments: (1) English Competence Series (ECS) which contains a series of six sub-tests for measuring linguistic competence in English; (2) Spanish Competence Series (SCS) which contains the six corresponding series of sub-testsfor measuring linguistic competence in Spanish; and (3) Inventory of Socialization (IOS) which contains three instruments for measuring socialization or adjustment: Personal-Social Responsive Interview, Rating of a Child's Behavior and Responsiveness, and Record of School Adjustment and Behavior.

Data from an administration of the instruments to 97 subjects were collected to obtain content validity and reliability. An item by item analysis of all instruments was carried out to ascertain which items were defective and in need of further revision. The investigator presented intercorrelations of the various sub-tests and sub-measures with each other and with other measures and variables. He also included a report on an interpretative use of the instruments in evaluating an experimental bilingual program.

In the conclusion of his report Cervenka stated:

> The experience acquired in developing these instruments suggests the desirability and feasibility of continuing the development, refinement and standardization of these instruments for measuring child bilingualism and socialization.

Echoic Response Inventory for Children

To obtain a measure of the range of sentence complexity with which the child is familiar, the Echoic Response Inventory for Children (ERIC) has been developed by Carolyn Stern (UCLA).

> This instrument presents a sequence of 20 sentences, ordered in length and transformational difficulty. The sentences are recorded on magnetic tape for consistent and replicable presentation. . . . There are two forms, equated in linguistic complexity, which can be used as pre- and post-test measures in either language experiments or developmental studies.
> In a preliminary analysis, the instrument has shown a reliability of .79 (Kuder-Richardson Formula 20 and interform reliability of about .98. . . . The scoring of the test at present is confined to a simple count of the number of sentences, regardless of length, which have been repeated with no more than one error. Thus there is a maximum score of 20 points.

Expressive Vocabulary Inventory

Another measure, the Expressive Vocabulary Inventory (EVI), which was developed at UCLA for the Preschool Language Program battery includes 40 items, selected from a list of words obtained in a field test to determine the vocabulary children are expected to possess when they enter kindergarten.

> By providing a larger number of suitable items, it should be a more reliable instrument for this age group. Secondly, the response required from the child is not a pointing or selection response but a verbal one. Whereas most vocabulary tests are heavily weighted with nouns, the stimuli in the EVI represent a variety of parts of speech. There are progressive verb forms, prepositions, adjectives, and adverbs, as well as verbs and nouns. For instance, the child is shown a picture of a boy swimming, and is asked, "What's the boy doing?" Credit is given only if the -ing form is used. Another picture shows a cat in a box, with the question: "Where's the cat?" The child gets credit only if he uses the appropriate preposition . . . .

Verbal Output Inventory

A semi-structured instrument called the Verbal Output Inventory which aims at getting larger samples of children's speech is also under development at UCLA.

> In this instrument, children are shown five black-and-white line drawings, one at a time. There are two country scenes, a middle-class urban scene, an urban slum street scene, and a picture of a typical zoo. For each scene, the children are given a five second interval to simply look at the picture. Then they are instructed to name as many things as they can. When they have stopped labeling, they are asked to tell what is happening in the picture. Finally, they are encouraged to imagine what is going to happen next. . . .

Structured Story Telling Test

Another test for obtaining language samples at UCLA is the Structured Story-Telling Test which requires the child to produce his own story on the basis of pictorial stimuli.

> For the first story, the child is shown two separate black-and-white line drawings. In the first picture, a boy is flying a kite. In the second picture, the same boy is standing and watching the kite flying away. The child is asked to look at both pictures (the examiner indicates by pointing to each picture consecutively) and to tell a story about them. The second story has three separate pictorial stimuli which tell a similarly simple and familiar story. The scoring system for this task is still in the process of revision, but there will undoubtedly be some credit assigned for recognition of story continuity.

Language Comprehension Inventory

Another series of tests at UCLA, the Language Comprehension Inventory, attempts to evaluate the child's ability to respond appropriately to the verbalizations of others.

> A subtest aimed at measuring ability to respond to prepositions requires the child to place a checker in the appropriate relationship to a small box (in, on, behind, etc.) or two boxes (between). Another subtest provides the child with a booklet, each page of which consists of a model and two or three alternatives. The child is asked to look at the model and then mark the picture which is exactly like it.
>
> Verbal mediation may well be considered the highest level of language usage. The way children use their own language to help them solve problems, as well as their ability to cope with those simple logical operations controlled by sentential connectives such as "both - and", "either - or", and "not" are tested in a series of subtests involving conjunction, disjunction, and negation. Children are also tested on their ability to draw inferences and solve problems on the basis of data which they are given.
>
> This battery of evaluation instruments is designed to assess the child's ability to use language in expressive, receptive, and mediational tasks. Designed as pre- and post-tests for the Preschool Language Program, they are not intended specifically for this particular language-training approach. None of the items appear in any of the instructional programs; however, it is hoped that there will be generalization and transfer from the training to the test items. As Shulman (1966) has pointed out, while the insistence on behavioral statements of objectives forces educators to think with extreme precision about the hoped-for outcomes, there is a danger that this emphasis on specifying behavior will restrict the scope of the instructional objectives. Courses thus become training in test-taking behavior. It should not be forgotten that the basic objective of instruction is to produce transfer to new situations and new tasks in which the trained skills are required. . . .

In discussing the development of the above instruments, the investigator made the following commentary:

> There is no doubt that all these evaluation instruments neglect a number of affective variables which have a potent impact on the rate and nature of learning. Among the most significant of these are impulsivity, motivation, and attention. Middle class children have already learned to value the praise and approval of adults. The effectiveness of these secondary reinforcers in controlling the behavior of children from low-income homes is not equally well established. Part of the

task of an intervention program is to teach these children to obtain satisfaction from achievement in academic tasks both from their own sense of increased competence as well as from the contingent approval of adults (Temp, 1967). It is quite possible that many of the gains in I.Q. scores reported in evaluations of intervention programs are more a reflection of the fact that the child has learned to respond more appropriately to the examiner's expectations, as a result of reinforcements within the school situation, than any improvement in ability to perform the various tasks (Glick, 1966).

A major source of difficulty in evaluating instructional programs is that the instruments used are designed to measure individual differences rather than program effects on groups (Trismen, 1967). The use of a large pool of test items, as advocated by Cronbach (1957), would make it possible to construct a number of different tests to be administered to groups of children who have received a particular instructional procedure. For this item pool it would be quite appropriate to include at random items selected from the instructional material, as well as items over new material. A test of the objectives of both learning and transfer could thus be provided.

This procedure is particularly useful with young children who cannot sit through lengthy test periods. The test would not be a useful measure of the achievement of individual students, since each child would be tested only on one or two items over a wide variety of skills. Nor would they be useful for comparing performance of children with others in the class, since each child in a particular class might be given a different set of items. However, a reliable basis for evaluating the total effect of the instructional program in achieving its stated objectives could be obtained by gathering data at random over a large number of children.

In closing, it might be appropriate to mention one of the most sticky of all evaluation problems, and one which most program evaluations tend to avoid. That is, how worthwhile are the goals which are being evaluated? Even if it can be proven beyond doubt that specific behavioral objectives have been achieved, is the learned behavior really important or relevant? Does improving the child's ability to discriminate environmental sounds and distinguish differences and similarities in geometric or pictorial visual forms actually lay a solid foundation for learning to read? Does exposing disadvantaged children to a variety of experiences, so that they can produce coherent stories about them in a limited, dialectical form, mean that these children can then use language to conceptualize, classify, and form schemata with which to integrate the data in the real world?

More fundamentally, most preschool intervention programs are designed to prepare disadvantaged children for entrance into the traditional middle-class kindergarten; in kindergarten, children are being prepared for first grade; firstgraders for second, and so on down the line. Preschool programs evaluated on this type of criteria are successful if they demonstrate that children who complete the program are therefore more likely to succeed in kindergarten, and even in first grade. But is this the ultimate goal? It is true that the UCLA Preschool Language Program has accepted "as expedient" the objective of success in kindergarten and first grade. It is equally important to develop instruments to evaluate how well a particular curriculum achieves its stated goals. But this does not minimize the importance of at some point attempting to evaluate the goals themselves.

Language Structure and its Effect Upon Cognition

Vocabularies of Cultural Groups

The following two abstracts by Irion (Tulane University) describe his research in the area of language and cognition.

> An attempt was made to analyze the vocabularies of various age groups and cultural groups in terms of the derivations of the words used by the members of the groups and to analyze the effects of the derivational structure of the language on cognition. A free association technique was used. The following questions were asked: (1) does the vocabulary structure of children change in its derivational components with age; (2) do children from different sub-cultural groups differ with respect to the degree of Latinization of their vocabularies; and (3) do free associations tend to occur within "sets" defined by derivational characteristics? In general, no differences due to age or to membership in sub-cultural groups were found. However, within the limits of the present study, it was demonstrated that Latin-derived stimulus words do tend to elicit Latin-derived response words and Old-English-derived stimulus words do tend to elicit Old-English-derived responses. In other words, free associations do tend to occur within "sets" defined by word sources.
>
> Pilot work had demonstrated that persons from homogeneous cultural backgrounds tend to give more of the same free associations to a given set of stimulus words than do people from hetereogeneous cultural backgrounds. The possibility existed, therefore, that degree of cognitive difference between different sub-groups might be scalable in terms of the degree of overlap of free association responses to a standardized testing situation. A number of sub-cultural groups were tested and systematic differences in degree of response overlap were obtained, but these differences seemed to defy reasonable or rational systematization. Although work on this project is being continued, as far as the study reported here is concerned, the scaling of cognitive differences by assessing the degree of overlap of free association responses does not appear to be a fruitful technique.

Organization of Speech Input

Miron et al (Syracuse University) adapted a method by which to determine how a child organizes the speech he hears into linguistic segments. His description of this method and discussion follow:

> The click displacement procedure [developed with adult subjects] offers the investigator a subtle means of trying to trace the longitudinal development of linguistic competence in the child . . . . A total of eight practice utterances and 20 test items were devised such as to be well within the linguistic competence of each of two subject samples of eight

> children drawn from kindergarten and second grade classes.... The eight practice items which always preceeded the test items were repeated twice, once at low reading speed and then again at normal rate.... Each of the ten test sentences has a corresponding non-sentence produced by randomly ordering the lexical items. Objective placement of the tone-bursts was on the lexical item in either version....The tone-burst was a 60 msec., 1K Hz. signal. Administration of the test items was in a counter-balanced order which controlled for sentence or non-sentence position....
>
> In view of the relatively small N size employed in these experiments, the following general conclusions are subjectively strengthened in their prepotence as determiners of judgments of the loci of extraneous distortions in speech. For children, displacement of a tone-burst is controlled, at least in part, by the syntactic organization of lexical material, and by the nature of the lexical stock comprising that material. Greater magnitude of displacement is found for sentences, less magnitude for non-sentences. For younger children there is a significant tendency to preposition the disturbed click location in both sentences and non-sentences. For both groups of children there is a tendency for click location to be preposed in non-sentential material and post-positioned in sentential material.
>
> Procedural modifications involving the nature of the click distortion, its mode of presentation and the nature of the response task do not appear to delimit the generality of the observed findings. Loci identification for relatively young children is within their competence repetoire.
>
> Children appear to be more sensitive to lexical modification within syntactic forms than do adults. And finally, as has been observed with adults, perceived click loci migrate towards the major constituent boundaries of sentential material.
>
> Further research which would systematically vary the nature of the syntactic and lexical forms of the stimulus materials is clearly called for. The results of these experiments have indicated the fruitfulness and feasibility of such further research.

Comprehension as a Function of Structure

Huttenlocher (Teachers College) investigated "children's comprehension of verbal instructions as a function of certain aspects of grammatical structure"

> Subjects were to carry out an action, i.e., place a colored block above or below a block of a different color on a "ladder," or place a colored truck in front of or behind a truck of a different color on a "road," in response to an instruction. One object was always the grammatical subject of the statement, the other was the grammatical object.

> In general, the article that was the grammatical subject seemed to be prepotent in determining both the child's action and understanding.... It seems as if syntax, temporal order of elements, and semantics guide *S*'s actions. In these situations which are unstructured where *S* must place two items, *S* placed first the item that was mentioned first. In a more structured situation, where *S* must choose only one of two already fixed items, *S* will move the actor.

Acquisition of Language

Recall and Acquisition

Horowitz et al (University of Kansas) were concerned with "whether measured language deficits in Head Start children reflect slow acquisition in normal development or the interference of dialect with standard English or both."

Their research design was:

> a normative and comparative description of childrens' performance over an arbitrarily defined series of verbal language tasks. [From a pilot study]. . . it was determined that there was no difference in correct performance length when a child was asked to repeat a string of numbers between one and ten, and when he was asked to repeat a comparably long string of words known to him, put in ungrammatical order. However, children from middle income backgrounds and children from low income backgrounds were differentiated in performance, with children from the low income environments doing more poorly . . . .
>
> The present study followed the pilot work in modifying and extending the stimuli to test more specifically relative difficulty of certain linguistic forms in both populations.

Thirty middle-class children were paired with 30 Head Start children from low income homes at three different age levels. Each child was tested individually on five kinds of verbal tasks and each subject's responses were tape recorded and verified by two listeners. Test strings of words were presented in order of increasing string length.

> To date, only a general description of the results is available [as some data are still being collected].... Considering a comparison between the Head Start and the middle income children, . . . the five-year-old Head Start child generally performs like the four-year-old middle income child, and the four-year-old Head Start child like the three-year-old middle income child . . . . Also it should be noted, . . . that as the string length increases for the more complex language forms, five-year-old Head Start performance drops below the four-year-old middle income level as well. Because the Head Start childrens' performances in these tasks are not different in order of development from those of the other group, but perhaps only different in rate, we are tempted to think of normative acquisition of language forms for both groups as being shaped and promulgated in the same way -- namely by environmental conditioning.
>
> However, this common-sense assumption needs to be explored, and some of its implications tested. For instance, it recommends as possible that the recognition and generation of language forms in the young child greatly can be effected by

> strengths and kinds of conditioning, and that while certain tendencies of transform construction normatively may be recorded, these tendencies can be altered by other forms of conditioning. Such activity of acquisition, while naturally confined by neurophysiological boundaries, then might be described. Especially now when without evidence and for reasons of logic, grammarians have begun to claim that their kernel transforms are nothing less than ontogenetically derived universal forms, there is need for a more qualified appraisal of what variables of experience can effect and do effect the developmental process of language acquisition.

Instruction: Dialect Versus Standard English

Keislar (University of California, Los Angeles) investigated the relative effects of providing instruction for culturally deprived four-year-old Negro children in the Head Start classroom in a conventional Negro dialect as compared with standard English. He also studied the effect of having children respond to instructions by speaking aloud the relevant cues. Two programs of content were presented to 17 urban Head Start children.

> The major finding of this investigation was quite unexpected. These Negro children learned significantly more about the content of the first program. . . when the commentary was presented in standard English than when it was presented in a Negro dialect which resembled the dominant dialect in their urban community. However this difference was not maintained in the second [program] perhaps because the [second] program was not as effective and the children did not learn as much, as defined by posttest performance as they did from the [first] program.
>
> An important additional factor may be that at the beginning of the investigation the children found the Negro dialect somewhat strange, especially since the personnel administering the program were Caucasian. Children are accustomed to hearing standard English on television, but they seldom hear Caucasian adults speak in Negro dialect. It is possible that it took a little while for them to become accustomed to this novel situation. By the end of Experiment I, they had become sufficiently familiar with the situation to be able to profit equally from the instruction in Experiment II, whether presented in dialect or Standard English.
>
> There is also the possiblity that there are such wide variations in dialect regionally, and even from one family to the next, that no single dialect, however "typical," can communicate equally to all children. On the other hand, standard English may be a much more constant form of speech for this entire group.
>
> The study needs to be replicated with an improved instructional program and a larger population of subjects. Special emphasis

should be given to checking out some of the hypothesized bases for the differences found. For instance, a linguist should evaluate the degree of match between the dialect version and the dialect spoken in the community. Obviously, it will be impossible to prepare a different dialect tape to suit each child. In an urban community this problem is aggravated by the fact that families come from a wide variety of geographic and dialect areas.

On the basis of the results of this study, there seems to be little support for an increasingly popular notion that young Negroes would suffer less of a handicap in their early school years if they were initially taught in a dialect with which they are familiar. Instead, evidence has been presented to show that instruction employing standard English produces superior learning under some circumstances. Even if, in a longer replication, a no-difference finding is produced, the ultimate advantages of standard English as an acculturation factor in the dominant middle-class society would support the policy of using standard English in teaching as soon as possible.

Relation Between Language Habits and Socialization

Stolz et al (University of Texas) are investigating relations between language habits and attitudes. The results reported were preliminary and usually based on only a part of the total data. The purposes of the work are to study:

> The relationship between socialization and linguistic habits. - In very gross terms, our hypothesis here is that if a child feels positively about an adult, he will try to act like that adult, including attempting to talk like him. . . .
>
> Comparison of socialization indices for lower and middle-class children. - The socialization measures are of interest in their own right since they index some of the attitudes held by children toward home and school. Within the experimental and control group, changes in how a child views the school situation during his first three years can be detected by the appropriate analyses of our data. Of course, of even greater interest would be a comparison of two groups over time. This may increase our understanding of just how the school experience differentially affects the lower versus the middle-class child.
>
> Comparison of speech patterns for lower and middle-class children. - In recent years, there has been a great deal of research on how children learn to talk . . . but almost nothing is known about the last phases of this learning, i.e., the development of linguistic habits in the sixth, seventh, and eighth years, and particularly how the language learning process in this phase is affected by socio-economic class. One often hears that culturally-deprived children are "less verbal" or are generally retarded in their linguistic development. On the other hand,

> Lenneberg (1967) has presented evidence that linguistic development is to a large extent maturationally controlled -- thus suggesting that socio-economic background may determine what language a child learns, but will have little effect on how fast he learns it. The relatively large samples of speech collected under more or less controlled conditions in this study can be analyzed for differences in linguistic complexity as a function of both age and socio-economic class.
>
> Replication of previous sociolinguistic results. - Labov's recent work in the area of sociolinguistics (Labov, 1966) has provided some new answers to traditional questions concerning the relationships holding between variables of linguistic style, dialect, and socio-economic class. Among other things, his results appear to bear on how languages change; that is, how and why features of one dialect or language are borrowed into another. Since his work has been mainly in New York City, . . . it would seem useful to attempt a replication of some of his findings in a culture and dialect community quite different from New York City's.

The investigators selected first, second and third grade children from two contrasting groups for their two samples: the experimental group of 54 children came from a poor rural Anglo group, known as Cedar-choppers because one of their major occupations is chopping wood and selling it for firewood and fenceposts; and the control group of 51 children came from a middle class suburban area in Austin.

> Three socialization measures were taken on each S in the study: one was the teacher's ranking of the child's position in his class with respect to the child's socialization into the school situation; the second was the questionnaire, administered to the child, which was designed to assess the child's acceptance of several middle-class values. The third measure -- or, more accurately, group of measures -- was derived from the child's responses in an oral version of a semantic differential (SD) task; eight concepts [mother, father, me, my teacher, the child that the teacher likes best, school, home and how I'd like to be] were measured on eight four-step scales.

The investigators have completed data collection but have only begun data reduction and analysis.

Non-Verbal Representation and Linguistic Competence

Franklin et al (Bank Street College of Education) summarized their on-going work on non-verbal representation as follows:

> The current exploratory study has three main objectives. The first is to investigate, through performance on a series of tasks, aspects of non-verbal representation in disadvantaged as compared with middle class pre-school children. The second objective is to investigate, in a preliminary way, relationships between non-verbal symbolizing ability and linguistic

competence. The third objective is to develop, on the basis of continuing investigations, a set of tasks or techniques tapping non-verbal representational functioning which is more refined and systematic than is the set of tasks being used in this exploratory investigation. . . .

The revised series of tasks is comprised of four groups, designated as (a) play situations, (b) imitations, (c) spatial arrangements, (d) picture-object matching. . . . Each task is presented at two levels of difficulty. . . .

Methods for coding of task performance are currently being worked out. Performance of the two groups (disadvantaged and middle class) on each group of tasks, and on the set of tasks as a whole, will be compared through qualitative and quantitative analysis.

Data from tape recordings of test sessions, language tests, and task performance will be utilized to investigate relationships between language usage and non-verbal representational functioning.

An examination of individual consistency in task performance, and comparison of classroom behavior with test performance, will be undertaken in the attempt to ascertain the generality of our measures of non-verbal representational functioning.

Data from "Inventory of Factors Affecting Test Performance" will be utilized to check on whether differences between groups on task performance are closely related to variables such as attention span, etc.

CHAPTER IV

LEARNING

The studies summarized in this chapter include those on conditions for effective learning, on reinforcement and operant conditioning, and on egocentrisim and number conservation.

In one study the effects of different modes of presentation (visual and aural) on acquisition and interference in paried-associate learning were examined. Another project involved a study of the effectiveness of different methods of instruction in learning puzzle assembly skills.

Operant conditioning methodology was developed and used in several kinds of studies: in speech training, discrimination, generalization, verbal imitation, fluency, and development of motor coordination. Also reported was an ongoing study of the effect upon learning of consistent versus inconsistent reward.

Research stimulated by Piaget's theories included an exploration of ways in which egocentrism begins to decline and a study of the effectiveness of training on facilitation of number conservation with middle-class and Head Start children.

Conditions Conducive to Learning

Mode of Presentation

Hall (Syracuse University) carried out a study to extend our knowledge about developmental differences in paired-associate learning. More specifically he was concerned with "the effects of mode of presentation on acquisition and interference with [60] kindergarten and [60] second-grade children."

The investigator discussed his results in the following paragraphs:

> Although it is, of course, impossible to exactly equate the two modes of presentation, the writer felt that by using pictures rather than printed words and earphones rather than free field he had come closer than previous attempts. The present writer also feels that in light of findings [from this study] the earlier generalization . . . that children learn faster aurally than visually must be modified. It seems possible that the conditions under which different modes excell may be quite specific with both subject and task parameters in need of further investigation.
>
> The fact that five-year-olds show no significant negative transfer in the A-B,A-C design has now been replicated three times . . . with the audio mode. The addition of one more pair and the visual mode of presentation in the present study adds to our confidence that this is indeed a generalizable phenomenon. . . . [Since other studies] have also found the five-year-olds to perform differently from older children, the present author believes a case is made for asking psychologists interested in paired associate learning to give this age group more theoretical attention. Maybe the most pressing problem concerns the question of whether this is a maturational or experiential effect. The tendency,so far, has been to try and account for it through experience. . . . On the other hand, this still leaves unanswered the question of why most children acquire the correct amount of experience to behave like college students between the ages of five and seven. Since all children in these studies have been in some kind of school at time of testing and the present experiment was done in the latter half of kindergarten, after some formal instruction had begun, the effect of school may be less important than often represented.

Instruction: Problem Solving

Lombard (UCLA) investigated effectiveness of instruction in puzzle-assembly skills with a Head Start sample of 65 children. The different treatments were:

> (1) puzzle assembly with instruction emphasizing the appropriate vocabulary; (2) stories in which the vocabulary was developed, but no practice in puzzle assembly; (3) puzzle assembly practice without relevant vocabulary instruction; and (4) control with no special instruction between pre-and post-tests.

Twenty puzzles were used and all but three of these were specifically created for the program "so as to insure an ordered hierarchy of difficult along with controlled dimensions."

> The [post-test] data indicate that both the Instruction and Practice groups showed significant gains in puzzle-assembly skill. The Stories group regressed in both the Puzzle and Formboard tests. These children appeared to lose interest, and had to be coaxed to continue after the first few days; the children in the other groups participated willingly throughout.
>
> Evidently, a procedure which consists of listening to stories and looking at pictures does not get these children sufficiently involved so that they will put out the effort required in the manipulative tasks. . . . In other words, it is not the number of component subskills, but the type of experience provided which is the critical factor.

Reinforcement

Several investigators studied methodology in operant conditioning and modification of various aspects of behavior through its use.

Speech Training

Jacobson et al (University of Kansas) presented a case study of a two-year-old child with whom they used a technique for measuring generalization effects of speech training. The procedure required a "baseline measure followed by training-probe, training-probe, etc., sequence."

> The...study describes a procedure for training the final "t" sound and a method of measuring generalization to other words which also end in the final "t". By reporting this latter method, we also are stressing the necessity of gathering data during therapy. Although many therapists often hope or assume generalization will occur, it is better if a record can be produced to see if in fact it does. Further information of this type would often help decide future speech modification procedures for a child, depending on whether generalization was occuring. . . .
>
> The experimental procedures were divided into four phases: 1) Establishment of instructional control; 2) Assessment of language responses; 3) Probe test baseline; 4) Auditory stimulus-vocal response training sessions with interspersed generalization probes; and 5) Visual stimuli-vocal response generalization probes with a training session interspersed . . . .
>
> The data show a fairly orderly and rather immediate increase in this S's final "t" response to non-trained test words. By the beginning of Probe II, it appears the training procedures with "cat" were effective in generalizing to other words ending in the final "t".

> However, as is often the case in many therapeutic disciplines the subject does not always maintain the progress he has previously demonstrated. . . . The speculations which appear most plausible, for the decline in final "t" responses to non-trained words, include a loss of reinforcer control due perhaps to satiation or the delivery of reinforcers for not adding the final "t" as well as adding it. . . .

Brigham's (University of Kansas) main purpose "was to examine the effects of extensive discrimination training on the speech problem of a four-year-old child. . . . A second concern was the examination of the procedures used to produce an auditory same-different discrimination from a visual same-different discrimination. Fading procedures . . . were used to transfer the control of the discrimination from the visual stimulus complex to the auditory stimulus complex while eliminating the visual stimuli."

The subject was a four-year-old girl at the University of Kansas Preschool. "This child had a variety of speech articulation and pronunciation problems. However, the major characteristic of her speech was that she consistently used inappropriate first consonant sounds. . . ."

> Comparing the scores of the first 3 auditory discrimination sessions with those for the last 3 auditory discrimination sessions shows the improvement in the child's ability to discriminate auditorially between her response and the correct response. At the beginning [of] the discrimination training, the child was responding at chance level on this task; after the discrimination training, the S could accurately tell the difference between her response and the correct pronunciation.
>
> However, this discriminative ability had little effect on her verbal responses. Her responses to the pictures in the post-discrimination test remained essentially the same in respect to the inappropriate sounds being measured, as the responses in the pre-discrimination....
>
> While there was some difficulty in analyzing which parts of the results could be attributed to what factors in the procedures, the overall procedure was clearly successful. The child learned the auditory discrimination, and her performance in other preschool tasks indicated that she had learned a valuable generalized same-different concept.

Imitation

In another study Brigham studied "verbal imitation".

> Three preschool children were reinforced for imitating English words presented by a model. The model also presented novel Russian words to the subjects but never reinforced the subjects' imitation of these words. When subjects were reinforced for imitating the English words, their accuracy of imitating non-

> reinforced Russian words increased. When reinforcement was not contingent upon subjects' imitation of English words, accuracy of imitating both the English and the Russian words decreased. These results support and extend previous work on imitative responses. . . .
>
> Since the procedures used in this experiment were not adequate to empirically differentiate between the possible explanation of the data presented here, a definite explanation must await further developments in the areas of conditioned reinforcement and imitation.

Fluency

Sigel et al(MSU and Merrill-Palmer Institute) conducted a study to demonstrate the practicality and feasibility of utilizing an operant conditioning technique in promoting verbal fluency. They were interested in doing this project because: "It is felt that the lack of reinforcement for verbal expression in a lower-class environment inhibits fluency."

> The subjects, four kindergarten children from an inner city public school in Detroit, were given a total of seven sessions each during three separate meetings. The testing consisted of (1) establishing a baseline of responses to ten simple objects within a 30-second time span, (2) five shaping sessions designed to increase the number of object related statements (i.e., those involving attributes of structure and function of the objects), and (3) a transfer session . . . .
>
> The shaping sessions introduced an extrinsic [reward] "very good" on a fixed ratio schedule of reinforcement beginning with two responses and increasing as fluency increased. Spot probing was employed only if the subject did not reach the base number of responses during a trial. The post-test session provided no reinforcement and demonstrated the amount of transfer to an unrewarded situation . . . .
>
> [Results revealed] a significant increase in object related statements . . . [and] significant changes in distribution of responses. . . for two subjects . . . . It is notable that the subjects showing a significant shift in distribution of responses across categories were those who showed limited breadth of category representation during the base period, while those subjects who did not shift significantly, had comparatively broad representation during the base trials.

Discrimination

On-going research was reported by Kolb et al (University of Kansas) on "Errorless discrimination in preschool children: a program for establishing a one-minute delay of reinforcement." Their abstract is presented below.

> A program was developed to establish a 60-second delay of reinforcement during which Ss were not to respond. Preceding and succeeding each delay condition Ss responded on a VI 5-sec schedule. Two groups of Ss were used; one without programmed delay conditions (baseline subjects); and those under programming procedures. The latter procedures involved: a two-second increase in delay intervals; response light off during delay

> conditions and faded back on; and a tone signal every second during delay which was also faded in duration and intensity toward the terminal conditions. Results indicate that it is possible to develop the discrimination using the program with Ss making relatively few errors and that such a program is necessary if a fine descrimination is desired. Further revisions in the program are being made to accommodate individual differences among preschool Ss so that the program may be successful with all children.

Patricia Wrobel et al (University of Kansas) worked on programming color discriminations with five children aged three and a half to five years.

> A color program was designed to establish a nonverbal (pointing) response to visual and auditory stimuli associated with eight colors. Nonverbal pre- and post-tests were administered to preschool children to select Ss who demonstrated few or none of the skills the program was designed to teach. These tests also provided information regarding the efficacy of the program for teaching these skills. A verbal color-naming pre- and post-test was also administered to determine if, through pairing auditory color-labeling stimuli with the visual stimuli during discrimination training, there was any effect on the Ss' verbal color-labeling responses even though these responses were neither required nor reinforced during the program sessions . . . .
>
> The color program appeared to be adequate for training color discrimination for the five Ss who tested below the "cutoff" point on the nonverbal color pre-test. Four of the five Ss increased in percent correct nonverbal responses and appear to have acquired discriminations among the eight programmed colors. The fifth Subject (E) maintained her perfect (100% correct) behavior from nonverbal pre-test to post-test.
>
> The results of the verbal post-test when compared with the corresponding pre-test indicate it is possible for some Ss to acquire responses not directly programmed. In this case a vocal utterance of E (the color name) served as a discriminative stimulus (S^D) on each visual discrimination trial. Subsequent to the program four of the five Ss were able to vocally emit the words which served as S^Ds in the program when presented the visual S^Ds alone. The one child that did not show this "bonus" effect on the verbal post-test is the only child in the group belonging to what could be described as a typical poverty-level family. This would suggest that this latter finding may not be as obvious when the program is administered to a Head Start population as it was with middle-class children. It may be that these acquired "bonuses" are dependent upon a specific type of past history. In this case we are "guessing" that this history must be rich in reinforcement for verbal imitative responses. However, this "guess" is merely a conjecture, one among many, which future research may or may not demonstrate.

Generalization

The purpose of a study by Sherman (University of Kansas) was "to develop a simple relational abstraction of 'matching' or 'mismatching' in children and to investigate some of the experimental conditions in which this abstraction generalized to situations which were not explicity involved in the training procedures . . . . The subjects were two children (one male and one female) approximately four-years-old, who were enrolled in the University of Kansas Preschool. . . ."

> When reinforcement was delivered contingent upon matching responses to certain sample stimuli, the children showed an increased amount of matching other sample stimuli in the absence of direct reinforcement for these matching responses. When reinforcement was delivered contingent upon mismatching responses to certain sample stimuli, the children showed an amount of mismatching other sample stimuli in the absence of direct reinforcement for these mismatching responses. The results indicate that the procedures employed established generalized repertoires of matching or mismatching in these children.

Motor Coordination

Michaelis et al (University of Kansas) also presented a case study illustrating an experimental design for evaluating the effect of shaping gross motor coordination in a 31-month old child in which a multiple baseline design was described and utilized.

> The responses of sitting and scooting decreased over time as the responses of walking, getting up without support and climbing steps were shaped and increased in rate. Standing without support was not trained but was observed to increase as a result of the experimental procedures employed.

Certainty of Reward

An ongoing study by Mostofsky (Boston University) was designed to use the desirable qualities of the reinforcement and operant approach, to incorporate the technology of experimental analysis in investigating learning behaviors and to bypass certain liabilities that accompany the use of primary reinforcement.

> Head Start children participated in an experiment in which rewards were made available. Regardless of the child's position response (right or left) the probability of reward was always p= .5. Discriminative stimuli were made available; one side imperfectly correlated with the subsequent availability of reward, the other perfectly correlated. Preference for the "consistent side" was evidenced. . . . The results give evidence that children will prefer a "consistent" reward situation to a reward uncertainty situation. This preference was exhibited to some degree by each child tested. . . .

> These findings strongly argue for sober reconsideration of the effectively controlling stimuli in an applied learning situation. While not deprecating the force of reward per se, the data clearly imply that much learning can be efficiently directed by the manipulation of other environmental features - some of which may be considered to have acquired secondary or conditioned reinforcement properties. It would seem imperative to attempt a translation of these findings for implementation in the classroom. The need is even greater where mere increases in reward is contraindicated. . . .
>
> The data analyzed thus far suggest that the predictions which would have been expected on the basis of reinforcement theory are substantiated in these studies. As such, its suggested relevance to the applied situation becomes quite substantial if the reliability of these findings is justified. That is, it does suggest that the use of secondary reinforcement may be an applicable reinforcer for Head Start programs. If this is the case, the failings which are encountered with primary reinforcement situations might be avoided and would not be sensitive to individual differences with respect to utility, satiation, or other factors related to racial and ethnic composition. Furthermore, it strongly suggests the advisability of paying closer heed to whatever reinforcement qualities attend the consistency of reinforcement schedules. It further suggests that the reinforcing advantages of discriminative stimuli should not be overlooked even when primary reinforcement is used. Perhaps a behavioral analysis of "consistency" may yet be profitable.

Effectiveness of Teachers' Reinforcements

Lucile Paden (University of Kansas) summarized her research which was concerned with preschool enhancement of the social reinforcement effectiveness of teachers in the following abstract.

> The central purpose of this study was to investigate two methods of enhancing the social reinforcing value of a preschool teacher (1) by associating her social reinforcement with noncontingent tangible reinforcers and (2) by associating her social reinforcement with contingent tangible reinforcers. Ss from both Head Start and middle-class preschool populations were tested. The design made it possible to compare contingency and noncontingency as reinforcement methods and as treatment of social reinforcement effectiveness. No differences were found between the groups in the amount of inattending behavior observed during a picture naming task under any of the conditions. Contingency and noncontingency both reduced the amount of inattending behavior significantly, and the effect generalized to the tests under social reinforcement. Social reinforcement alone did not significantly reduce the inattending behavior. Examination of individual data reveals an advantage of contingency both as a condition of teaching and as a treatment of social reinforcement effectiveness.

Paden spelled out some implications of her study in the discussion of results.

> The implications for teachers would be to pair social reinforcement temporarily with tangible reinforcers for children for whom social reinforcement alone seems to be relatively ineffective. Delivery of the reinforcers contingent upon a desired response from the child has sufficient advantage over noncontingency to make contingency the preferred method. For the children in this study, there were no significant differences between Head Start and middle Class children, although scores for the MC children were consistently lower than for HS. . . . The use of contingent tangible reinforcers to enhance social reinforcement seems more important for Head Start children than for middle Class children as the latter will probably come under social reinforcement control anyway. On the other hand, it is hard to justify leaving such matters to chance for any child.

Egocentrism and Number Conservation

Caroline Shanz' study (MSU and Merrill-Palmer Institute) was an attempt to explore the ways in which egocentrism begins to decline. "It is theorized that the child's awareness of himself as an object within a world of objects organized spatially about him begins with gross discriminations which follow a certain order of increasing specificity and organization."

> The major thesis of this study is that veridical predictions about subject-object relations are based on and develop from the subject's own experience in object relationships. A second aspect . . . is the exploration of a new method of assessing egocentrism in contrast to most previous research which has duplicated Piaget's mountain-landscape method . . . .
>
> This study will attempt to use the violation of expectancies, i. e., tricking the child, as a technique for assessing his ability to make veridical predictions about subject-object relations. The subject who is less egocentric, it is suggested, would exhibit such reactions to the "trick" as a facial and/or verbal expressions denoting surprise, amusement or perplexity, and increase his perceptual contact with the stimulus. . . . The sample of subjects was drawn from the Merrill-Palmer nursery school. The 48 Ss ranged in age from three years, zero months to five years, two months. . . .

The results of the present study showed:

> . . .about half of the sample of three to five-year-olds clearly differentiate between veridical and "unlawful" subject-object relations by verbalizing surprise, perplexity, noting change in the display, suggesting movement had occurred, etc.. . .

> It was also found that facial expressions occurring differentially between R and T conditions occurred in significantly more Ss under T [Trick[than R [Real] conditions. In Piaget's study four-five-year-olds were found to seldom understand the task requirements of inferring what a doll saw from various locations, and the earliest case cited of a child being aware that the doll would see something different was at six years, ten months. In contrast, the present method affords some information about the degree of veridical expectancies of three to five-year-olds, specifically that some children of this age do have gross expectancies of a relation between object appearance and their position in space. Although these children may or may not have been able to infer what they would see prior to changing their position, they indicate verbally a recognition that what they see after changing position is strange or incorrect . . . .
>
> The present study affords no independent assessment of the degree of egocentrism of the Ss by which to compare their performance on the Trick-Real assessment procedure. This type of validation of the present procedure is currently being undertaken. The present study provides some baseline data from which other studies, particularly those related to social-class differences in ego-centrism, may be carried out.

Blum (Boston University) reported tentative findings from an ongoing study which is concerned with the effectiveness of training sessions upon facilitation of number conservation among 45 middle class and 64 Head Start children, aged four through eight years.

> In order to study the emergence of number concept... two diverse samples were given training and testing in number conservation. Specifically, determination was made as to whether conservation of number emerges at different times and whether training procedures have differential effects. Subjects were tested under two treatments (manipulation of stimuli) and two conditions (correspondence). Differences were found between groups and as a result of training. Absence of interaction indicates that disadvantaged children are as amenable to training as their middle-class peers ....
>
> That the training procedure "works" is important in and of itself since previous efforts have been, by and large, unsuccessful. Additionally, this study points to the generally known fact that "underprivileged" children are "behind" when they enter school but probably more important is the finding that such youngsters are as amenable to training as are their "more privileged" peers. As mathematics is part of school curriculum from the very beginning and conservation of number is basic to a concept of number, a very practical application of this training procedure would be to use it to erase or ease one of the differences that can only snowball into more insurmountable difficulties with time.

CHAPTER V

INTELLIGENCE, TESTS AND TESTING, CREATIVITY, AND A STATISTICAL MODEL

Investigators at two universities studied the performance of lower-class preschool children on batteries of tests. One of these investigators used the Goodenough Draw-A-Man Test, the Stanford-Binet, and the Peabody Picture Vocabulary Test; the other used the Caldwell-Soule, Raven's Colored Progressive Matrices, several Piagetian measures, and the Kohlberg Sorting Task.

Item analyses of intelligence and achievement tests administered to disadvantaged children were made at two universities. Another undertook a major research investigation into the description, development, and sequencing of cognitive abilities. This study is being done in several phases and includes the use of an extensive battery of tests on children from four sub-populations and factor analyses of the items.

Several new tests were constructed: a matrix test to assess classification, sorting, and related cognitive skills associated with inferential reasoning; block building as an indicator of cognitive development; and a test of creativity. The matrix test was used with middle-class and disadvantaged children at two different age levels.

One experimenter investigated performance on the Stanford-Binet to determine if results could be increased by reinforcing responses to test items with edible reinforcers.

The last section of this chapter describes a statistical model that may have important significance for educational and behavioral research.

Results and Use of Tests with Disadvantaged Children

Beller (Temple University) reported that his research on characteristic functioning of lower-class preschool children supports "the general finding that the lower-class disadvantaged preschool child performs below his middle-class peer on intellectual tasks. . . ."

> This finding is confirmed on three different tests in successive years for children entering school at three different age levels . . . [and] the degree of poorer performance in the disadvantaged . . . child varies from test to test . . . . Lower-class disadvantaged preschool children do not deviate much from average on the Draw-A-Man Test by Goodenough . . . disadvantaged children deviate more on the Stanford-Binet Test and receive scores much below average on the Peabody Picture Vocabulary Test.. . .

An important implication from the above results is that "any estimate of depressed intellectual achievement in lower-class deprived children must be qualified with reference to the test on which such an estimate has been based." As Beller writes,

> . . . intercorrelations between two pairs of these tests decrease consistently . . . with age. This trend suggests that one has to be very careful in using different tests of intellectual achievement interchangeably as one moves from preschool to elementary grades.

Virginia Shipman (University of Chicago) found in assessing the cognitive development of two samples of Seminole Indians by means of the standard evaluation instruments for the national evaluation that the children were seriously hindered by the lack of facility with the English language and by sub-cultural differences in test behavior. "Accurate basals on the Stanford-Binet could not be obtained for most of the youngsters during the initial testing. When the Caldwell-Soule was administered, the cultural bias of the verbal items increased their incomprehensibility." She therefore made "an exploratory attempt to assess the feasibility of alternative methods for determining the cognitive development of bilingual or non-English speaking children from a disparate cultural background."

Twenty-eight children from two Head Start centers:

> were administered the Raven's Colored Progressive Matrices, sets A, Ab, and B, Form Board version; three Piagetian measures designed to assess the child's stage of concrete operations (conservation of volume and length and a dream interview) and two measures of classificatory behavior (class inclusion and an object sorting task). A month later, at the time of evaluation post-testing, 26 of the 28 subjects were administered the Stanford-Binet, Form LM, according to the Wright short method.

In her discussion of results with the Raven's Matrices, Shipman made the following observation:

> As a measure of the child's present clarity of observation and level of intellectual development, the Ravens appears to provide greater differentiation among the Indian children than does the Stanford-Binet. Although not a test of general intelligence, Sets A, Ab, and B do indicate whether the subject is capable of forming comparisons and reasoning by analogy; and if not, to what extent, relative to other people, he is capable of organizing spatial perceptions into systematically related wholes and analyzing them into their components. A few of the younger children exhibited what Raven refers to as "passive perception," reacting to the figures as presenting no problem. Most, however, if not perceiving the logical solution by analogy, tended to attempt to repeat a pattern in the design . . . .
>
> Since the sequence in which the problems are presented in the Ravens test provides training in the method of thinking, one might look at the child's performance as a measure of his ability to utilize the training offered. Thus, a child obtaining a low score on the Binet may be one whose environment has provided him with a limited fund of knowledge. His Ravens score, however, may indicate his ability to think logically given the appropriate stimulus cues. In contrast, a child may have received the culturally expected school-relevant knowledge but not have been encouraged in those activities facilitating the development of abstract thinking.

On the conservation of length and volume tasks, Shipman reported:

> For this small sample . . . the Indian children, especially those living on a remote reservation, were considerably retarded in their stage of cognitive development as assessed by these measures. They performed considerably below the level usually reported for children in this age range on the length conservation task . . . As had been found in previous research, one could not predict the child's stage of concrete operations from his performance on the Binet. These tasks measure different aspects of cognitive functioning. In contrast, the children who made consistent conserving choices performed above the 75th percentile on the Ravens.

Shipman also reported that many of the children were unable or unwilling to report dreams. However, with considerable urging they did respond to further questioning and to the monkey prompt described later in the protocol.

> Although most subjects indicated they knew what a dream was, only three seemed fully aware that a dream is not real and thought that dreams took place inside. None scored at a higher conceptual level. Most of the Indian children reported dreams came from Jesus.
>
> The data ... are consistent with previous findings indicating that the five-to-six year old expresses modified realism concerning dreams. Most of the Indian children, although stating that dreams had an internal origin or occurred within them, seemed uncertain about internality and contradicted it or ignored it in later parts of the protocol . . . .

On another measure, "class inclusion," involving candy chocolates and candy mints, the data "suggest considerable need for revision of this procedure as it is highly dependent on the child's verbal facility . . . ."

> The task seemed a semantic rather than a conceptual problem. Although most of the children made the initial discrimination of placing all candies and all chocolates in the experimenter's hands, they were inconsistent or completely failed the following items. "Some" or "any" was too difficult a concept and tended only to confuse them. Subjects tended to answer "yes" to all items suggestive of a switch from task-orientation to experimenter-orientation as the task became more meaningless for them. Only three children were consistent at the beginning in saying there were more candies, although eight children who said there were initially more chocolates than candies changed their response in the process of questioning. As was the case with the previously discussed tasks, none of the children was able to state a conserving rationale for his choices. The two boys who consistently differentiated correctly between chocolates and candies, although obtaining Binet I.Q.s of 78 and 90, both scored above the 90th percentile on the Ravens.

With regard to classificatory behavior, four measures were derived from a modification of the Kohlberg Sorting Task.

> Each child was given a scale score which incorporated the ratings of the child's sort according to properties of sorting which Piaget had observed . . . . The qualitative types of sorts which the children made (associative, identity, descriptive, collective and categorical) were used to form a nonverbal and verbal score. These sorting modes were weighted according to their developmental order. The nonverbal sort score refers to the children's object sorts. The verbal score is an index of their verbalizations about the object sorts. Finally, an average of the verbal and nonverbal scores was available.

> The modes of sorting analysis . . . incorporated a concrete to abstract dimension of development . . . . Because of our subjects' known difficulty in verbalizing rationales, a means of scoring the nonverbal behavior of the children independent of their verbalizations was necessary. This was confirmed by the lack of relationship obtained between the nonverbal and verbal scores . . . . Similarly, although the nonverbal score was highly correlated with the scale score . . . ,the verbal score was essentially unrelated to the scale score . . . . These results reflect the fact that the majority of subjects did not express rationales for their sorts. It should also be noted that for this sample the items did not consistently scale. Some subjects used all objects but gave predominantly associative responses; others were able to use complementary classes as requested in question 2, but did not include all members of a class in more than 50% of spontaneous groupings . . . .
>
> Consistent with the findings reported earlier, the Indian children tended to perform somewhat below the level expected for their age group. Several children in both Centers were unable or unwilling to sort the dolls after repeated urging . . . .The Indian children scored particularly low on the verbal measure. The discrepancy between the verbal and nonverbal modes for both Centers was highly significant . . . .These children, though performing at a low level in general, performed much more adequately in the physical manipulation of the dolls. This is consistent with the finding that one of the most severe difficulties of culturally disadvantaged children is their inability to verbalize, more specifically, to answer questions. As was the case with their performance on the other tasks, striking differences were found between the two groups, with the rural Indian children performing at a much lower level . . . .
>
> No child with inadequate language development performed at a high level of sorting. The marked difference in results for the two . . . samples is additional support for the idea that language is a *necessary* condition for high level thought in the child. Language is not a *sufficient* condition for high level thought in the child, however . . .. After minimum language has been obtained, there are still other factors which enter into determining the child's level of thought. Prior to the attainment of minimum language, it does not seem possible for the child to move to high level thought.

In her conclusion Shipman emphasized that this was an exploratory study, and that because of the small sample size the findings must be regarded as highly tentative. She goes on to say, however:

> The data do tend to support the utilization of a variety of measures for assessing cognitive development rather than a single measure of general intelligence. This enables one to differentiate the individual's level of acquired knowledge and his present modes of problem-solving, thereby facilitating individually-oriented educational planning . . . .
>
> The data were consistent in indicating a less advanced stage of cognitive development for the Indian children. Moreover, those subjects living under the more restricted, impoverished conditions in effect on the . . . reservation performed considerably poorer. In the absence of stimulation, the development of logical thinking appears to develop later. These results are consistent with previously reported findings on the effects of cultural disadvantage on intellectual functioning.
>
> Future studies, in addition to attempting to replicate the present findings with a more adequate sized sample, should focus on delineating the nature of the environmental variables affecting these responses. The results for the sorting tasks in particular suggest that language impoverishment is contributing to this retardation in cognitive growth. Previous research by this investigator (1965) has shown the interfering effect of a restricted language environment upon cognitive performance, especially in the area of categorizing behavior. The processes which theory dictates as essential for language learning are: 1) exposure to an adequate language model, 2) opportunity for practice, and 3) corrective feedback. Further research is needed to study the extent to which the Indian child's behavior is mediated by verbal cues which offer opportunities for using language as a tool for labeling and ordering stimuli in the environment. In addition, the development of thought and cognitive processes of problem-solving might be fruitfully studied through analysis of the communication styles evolving from the structure of the Seminole Indian social system and the structure of the family.

Analyses of Standard Tests

Item Analyses

Thorndike et al (Teachers College) performed item analyses "for both the Binet and the Caldwell Preschool Inventory. These were carried out for both the pre-and the post-tests, so as to provide information on the amount of change on specific items, with the hope that this might give some clues as to the nature of any cognitive gains that were emerging."

> [Results showed] some interesting irregularities for our Head Start group. Naming objects from memory (IV-2) and definitions (V-3) stand out as particularly easy in relation to other items at their levels. In the absence of a control group of average or above-average socio-economic level, these results are only suggestive of a fairly substantial unevenness in the ability profile in the Head Start children. . . . (Binet) items vary quite a bit both in initial difficulty level and in amount of change from pre-test to post-test. . . (but) the typical gain was about 9/10 of a standard deviation unit.

On the Caldwell, items also varied considerably in both initial difficulty level and in amount of change from pre-test to post-test.

> There is no special tendency for items showing large gains to be clustered in one section of the test more than any other . . . . It does seem that selecting for future use in studies of the differential effects of differences in Head Start programs those items showing the larger changes would yield an instrument with maximum sensitivity per unit of testing time. This criterion, together with appropriate level of difficulty, has been used in suggesting an abbreviation of the Caldwell for use in the 1967-68 intensive cognitive testing.

②

Zimiles (Bank Street) has completed a comparative item-content analysis of an achievement test (New York State Readiness Tests), taken by children from four pairs of New York City public schools. One of these pairs served children from white middle-class families while the other served children from lower class Negro or Puerto Rican families. Data from a ninth school, located in Harlem, enlarged the sample of disadvantaged children.

> The results of this micro-analysis of Readiness Test performance indicate that there is a rather widespread difference in ability level between middle-class and disadvantaged children, even at the time when they are about to begin first grade. Unless the differences which were found to pervade virtually every item of every subtest can be completely ascribed to a basic difference in test-taking skills, the data of this study indicate that differences between disadvantaged and privileged children are not restricted to one or two dimensions of the cognitive domain, but rather, extend to every area of intellectual functioning the test constructor attempts to assess. Because of the pervasive quality of the differences found among these groups of children, it is reasonable to assume that there is a general trait relating to test-taking effectiveness, whether it be attentiveness or perseverance or achievement motivation which distinguishes the two groups. Nevertheless, the manner in which the curves depicting item-by-item performance consistently remain parallel to each other suggest that the specific content of each item, too, influenced test performance. . . .
>
> The comparative data suggest some important points. First of all, it should be noted that the subtest with perhaps the heaviest verbal loading -- the Listening Test, was the one on which the disadvantaged groups performed best (as indicated by the admittedly tenuous norms of the test itself). This subtest required the child to attend to and remember a rather involved set of verbal statements. His relative degree of success in this area would tend to suggest that the emphasis upon the so-called verbal deficit of the disadvantaged child may be misdirected. While the data from the Word Meaning test do indicate that the two groups of children differed greatly in the number of words they knew, it is instructive to observe that the disadvantaged child deals relatively effectively with situations in which he must listen to a flow of conversation by his teacher which is made up of relatively simple, functional elements of language.

> Perhaps the most concrete and clearcut generalization which may be drawn from these test findings is that whereas most middle-class children can recognize the letters of the alphabet upon entering first grade, this ability is not present among most disadvantaged children. Unlike many of the other variables the Readiness Test attempted to measure, the nature of the discrepancy is so simple to delineate and to measure with precision that it seems to call for a compensatory educational program which provides training in this particular realm. However, the differences found in other parts of the test -- in the Word Meaning subtest, in the ability to copy figures, and in the test of numerical knowledge . . . suggest that compensatory programs which focus upon one or two concrete, narrowly circumscribed areas of intellectual functioning have the potential for erasing a deficit in only a relatively insignificant portion of the important areas of the child's intellectual functioning. Unless it can be demonstrated that these particular areas have a highly facilitating and central influence upon other areas of deficit as well as on the learning which is to take place in the school setting, it may be predicted that such compensatory programs will fail. In the light of the pervasive quality of the deficits of disadvantaged children, it is more useful to identify the nature and source of the integrative and organizational attributes which have thus far impaired their development of intellectual functioning, and to plan a school program which is geared to promote growth in this more basic, integrative level of functioning.
>
> The data . . . deserve further analysis and the results of this work need to be examined in the light of findings from other test data which have been gathered but not fully analyzed. In this fashion it will be possible to arrive at a more differentiated description of the disadvantaged child's level and range of cognitive functioning. Planning for Head Start, as well as the first few years of schooling, is dependent upon the availability of this information.

Sequence of Cognitive Development

At the University of South Carolina the Committee on Educational Research, of which Friedman is chairman, designed and implemented an investigation into the description, development, and sequencing of cognitive abilities.

> Cognitive skills have been defined by the present investigators as the ability of a child to solve problems in response to verbal instructions. As the definition limits the research to children of at least three years old, it will be expanded at a later point in the investigation to include younger children . . . . The present investigation was designed to provide extensive description of the development of cognitive skills in young children, and to relate these skills (in terms

of discrete traits and sequences of development) to define sub-populations of the United States. When the resulting profile has been tested across sub-populations, the first phase of the investigation will be complete. This phase of the research is expected to yield the following:

1. A more precise description of the "universals" in cognitive development-- discrete traits and sequences of development that emerge.
2. A more specific and extensive description of cognitive development in given sub-populations of the United States than is presently available for any population.

In the Phases II and III of the investigation, teaching methodologies will be related to the profile and the profile will be utilized in the diagnosis and treatment of problems in cognitive development . . . .

The development of a conceptual model for the investigation consisted of relating three general elements into an overall research design. The first of these elements was the location and assembly of a large number and variety of tasks or problems which required cognitive skills to perform. The second was the identification of sub-populations of children from different cultural backgrounds and of various ages. The third element was a method of relating and analyzing the performance on each of the cognitive tasks of the several populations of children. Since the two important dimensions of the investigation are trait and developmental sequence, the data model for the investigation became a two-dimensional matrix of task descriptions, the horizontal axis representing categories or discrete types of problems (cognitive traits) and the vertical axis representing the sequence in which children are presently able to perform the tasks (in other words, easy to difficult). No prior suppositions were made regarding which traits exist or in what order different skills develop. In effect, children of given populations are presented with a great variety of problems; the correct and incorrect responses of the children then are analyzed to place the problem descriptions in an array according to (1) similarities and differences and (2) sequences of development.

The research model is inductive in that it takes as its point of departure the presentation of problems to children and the analyses of their responses to them rather than beginning with the testing of a theory of behavior. It is convergent in that it is not planned to test one or more hypotheses but rather to address a general problem through successive states of closer approximation. Critical aspects of the model are the selection of sub-populations, the identification of cognitive tasks, and the development of analysis procedures . . . .

Four sub-populations from within the total population of the United States were selected for the investigation:. . . disadvantaged children (as defined by the Office of Economic Opportunity index) in the South, advantaged children (annual family income from $6,000 to $15,000) in the South, disadvantaged children (as defined by the Office of Economic Opportunity) in the North and advantaged children (annual family income from $8,000 to $17,000) in the North . . . .

The Evaluation and Research Center staff assembled copies of more than fifty published tests . . . [and] an outline of skills apparently required by the various tests--item by item--was prepared . . . . Six major categories were derived, each comprised of specific problem-solving abilities. Each item in every test was coded on the basis of this outline in terms of the specific cognitive or problem-solving ability that it appeared to elicit. The coded tests were then examined and final selection was made on the basis of (1) a broad, representative distribution of various task types and (2) a stratified sampling according to task levels of difficulty . . . .

The tests [which were finally selected] were arranged in four batteries on the basis of approximately equal time required to administer the battery and a broad range of skills required within each battery. As all subjects would not be administered all tests, it was necessary to select common or "anchor" tests that would be administered to all subjects in order to have a basis upon which items in different batteries could be related. The Stanford-Binet Scale (1960) and the Wechsler Preschool and Primary Scale of Intelligence (1966), together with selected color items from the Pre-School Inventory Test (Caldwell-Soule, 1965) were chosen as the "anchor" tests . . . . A number of procedures were developed and utilized to insure the quality of the data collected . . . . The initial data analysis has been concentrated on the Stanford-Binet and the WPPSI . . . .

One assumption basic to the present research is that cognitive skills develop in some sequential manner; the investigators expect to shed some light on the nature of this development by the manipulation of test items. If items have a factor or trait in common and the postulated developmental sequence is a real phenomenon, then children should show advances in some orderly fashion in their responses to items associated with a particular trait or factor. In other words, if trait items can be scaled on difficulty then a child should be able to answer successfully item one before item two . . . .

The initial problem of the analysis was to segregate the 360 items into groups based upon the interrelationships among items. Although many schemes of groupings might be feasible (e.g., by content, by type of response, by type of stimuli, etc.) the factor analysis technique appears to be consistent with the conceptual design of the present study . . . .

> The procedure which will be used will leave about 300 items which will be divided into six sets of fifty items each, such that each set has about the same range of difficulty. Each of these sets of fifty items will be combined with the original set of fifty middle difficulty items to form six sets of 100 items of which fifty items are common to each set. These six groups will be used to perform factor analysis on the matrix of correlation coefficients for each group.

Construction of New Tests

A Matrix Test

Zimiles (Bank Street) has concentrated on the development of a Matrix Test.

> The Matrix Test was devised to serve as a procedure for assessing classification, sorting and related cognitive skills associated with inferential reasoning. Based upon a format used by Inhelder and Piaget (1964) to study classification behavior in young children, it consists mainly of newly constructed items. The test also resembles Raven's Progressive Matrices Test, but its format and content is more suited for use with young children -- it includes representational as well as abstract items, it requires a less abstract attitude, and it presents items individually, on separate cards (8" x 11"), rather than in a booklet.
>
> Each item of the test presents a matrix of 2" x 2" x 3" squares in which all but one of the squares contain two-dimensional geometric figures or pictorial representations of familiar objects arranged in groups so that the figures form some relationship to each other on the basis of their appearance, content or spatial position in the matrix. The subject is asked to find the figure missing from the empty square on the basis of the pattern established by the figures in the remaining squares from among four alternatives which are presented alongside the matrix. The subject merely must point to the alternative which he believes to belong to the empty square. This format has the advantage of simplicity of administration and ease of communicating the essential requirements of the task. Unlike other procedures in which the intricacy of the procedure may elude the grasp of the young child, as in conventional sorting tasks, for example, in which the child may fail to understand the request to "choose the objects which are alike" or "which belong together," the conspicuousness of the vacant square in the Matrix Test almost invariably communicates to even the youngest child that the appropriate figure must be found. Further, after the task is presented initially, the test can proceed without any verbal interchange between examiner and child. The child need not utter a single word during the course of the administration of the test; the examiner, too, may remain silent after the task is introduced initially.

> For the young child who feels assaulted by the speech of adults, or who does not feel sufficiently comfortable with a strange adult to talk with him, a test which minimizes the need for such verbal interaction provides him with an opportunity to function with a minimum of disturbance and interference.
>
> The test is made up of 44 items. Although items were originally constructed so as to include items presenting one-way and two-way classification problems, in all, four different classes of items may be distinguished. These four classes of items have been called: Perceptual Matching, Class Membership, One-Way Classification, Two-Way Classification . . . .
>
> Children in kindergarten and grades one, two, three of two public schools were given the Matrix Test. School A is located in a middle-class neighborhood and its children come from white, middle-class families predominantly. School B is located in Harlem; virtually all its children are from lower-class Negro families. In each school, 40 children (20 boys and 20 girls) were tested in kindergarten and each of the first three grades.

In addition, a study of regional differences in performance on the matrix test among five-year-olds was made. Samples of disadvantaged Head Start children and middle-class preschool children from the south served as subjects.

Zimiles presented the following discussion of his results:

> Thus far, studies of the Matrix Test have shown that it is a test which presents a task which even a four-year-old can readily understand and with which he can experience moderate degrees of success. At the same time, it includes a set of items too difficult for most eight-year-olds so that the age range of its applicability is wide.
>
> Comparative studies of middle-class and disadvantaged children indicate the presence of a great deal of overlap at age five, with middle-class children performing somewhat better. This difference, however, is widened in the first grade and perpetuated during the following two years so that overlap in performance on the Matrix Test between the middle-class and disadvantaged children diminishes from kindergarten to second grade. This advancing gap appears to be attributable to several factors, all of which affect performance on the more difficult items of the Matrix Test. The more abstract Class Membership items tend to be passed by the middle-class children substantially more often.
>
> Further, the One-Way Classification task appears to be a prime differentiator between middle-class and disadvantaged children. Whereas both groups are adept at finding the common element among diverse figures, the concept of group membership based upon the spatial organization of a set of figures eludes many more disadvantaged children, even at age eight or more.

Whether it is the nature of the concept underlying one-way classification which presents special difficulties for the disadvantaged child, or whether it is the shift in concept application required by the sequence in which the test items are presented which is largely responsible for the greater deficit in performance recorded by the disadvantaged group is something which will have to be established by further study.

Finally, the two-way classification problems proved to be too difficult even for most of the oldest children. However, in contrast with the mixed performance among middle-class children, there was almost universal failure on these problems among the disadvantaged children. Here, too, it will be important to establish whether it was their inability to shift concepts or their greater vulnerability to boredom or fatigue which contributed significantly to their failure on these items.

Since changes in performance as a function of age were not great, particularly in the six-eight range, it appears to exaggerate the difference between middle-class and disadvantaged children to say that the disadvantaged children seem to be two years behind in their performance on the Matrix Test. Nevertheless, the data . . . do suggest that the performance of the second grade disadvantaged group most closely resembles the performance of the kindergarten middle-class group, and correspondingly, the results of the third grade disadvantaged group appear most similar to the results of the first grade middle-class group.

Sex differences in performance were not marked. Where they occurred, they tended to favor the girls.

The data so far available regarding regional differences in scores suggest that there is considerable uniformity in the patterns of performance observed in diverse settings. Many parts of the test appear to transcend regional differences in style of functioning as well as language behavior.

The Matrix Test presents a format for the study of cognitive functioning whose full potential has not been tapped. At the same time, it has already generated a set of findings which need to be better understood. The most fruitful approach to understanding what the Matrix Test is measuring is to continue the comparative studies of middle-class and disadvantaged children and the evaluation of performance as a function of age. Additional items need to be developed for the younger age levels by increasing the variety of Class Membership items so that the test will yield more differentiated information about the cognitive functioning of very young children. In this regard, the responsiveness of Matrix Test performance to Head Start experience, in order to determine whether the test can be used

> as an index of cognitive change, attributable to Head Start, is yet to be established.
>
> Experimentation needs to proceed with a three dimensional form test to determine the influence of the mode of presentation of test stimuli. Sigel's data suggest that the difference between representational and real objects is likely to be critical for the performance of young disadvantaged children. The generality of his findings can be established by experimentation with three dimensional matrices.

Block Building: A Cognitive Indicator

Almy et al (Teachers College)are investigating the use of block building as an indicator of the level of cognitive development.

> As a first line of exploration in this direction, data were gathered during the spring and summer of children's behaviors when provided with a stock of large wooden building blocks (Creative Playthings, Inc.) and asked to build a house.
>
> Protocols were obtained for 100 children in Head Start Centers, of whom 50 had completed a year of Head Start and 50 were newcomers. The protocol consisted of a running log of the child's behavior, both manipulative and verbal. Finally, when the child expressed himself as satisfied with his construction, photographs were made of the final product . . . .
>
> Various aspects of the behavior and product have been coded. Work on the project continues . . . .

Test of Creativity and a Programed Booklet

One study among the numerous research investigations of the year explored the topic of creativity. Marjorie Clos et al (MSU and Merrill-Palmer Institute) conducted pilot studies concerned with measurement of creativity and development of a programed instruction booklet in teaching art.

> The first study was an attempt to compare the creativity expressed by preschool children in portraying a familiar concept, i.e., a person. It also explored the use of colored felt forms to overcome the motor limitations present in very young children. Lastly, it sought to contrast the spontaneous representations produced by the subjects with their reproduction of these representations . . . . [In the first study 40 Head Start children aged three to five were asked to] "Draw a Person," [DAP] then "Make a Person in Felt,"[MAFP] and finally to "Copy the Felt Person."
>
> The responses to the "Draw a Person" task (DAP) and "Make a Felt Person "task (MFAP) were rated on a ten-point rating scale for creativity . . . The correlations between the independent ratings of two judges were .94 and .80 respectively.

Scores on the two tests correlated with each other at .76. A ten-point rating scale was also devised for the graphic reproductions of the felt portrait. On this, the correlation between the judges' ratings was .78.

Analysis of the data failed to reveal any significant difference between scores for creativity on the DAP and those obtained from the MAFP . . . . Copying is a more difficult task than spontaneous representation using either graphic or felt media . . . . The mean scores of the older children were higher than those of the younger subjects on both tests . . . . The older the child, the more capable he was at representation, and the more creative was his product.

Although the mean scores for creativity on the two tests did not differ significantly, qualititative analysis of the data revealed that for some children the use of felt forms enabled them to achieve a level of representation and a degree of creativity far above what they were able to attain in drawing . . . . The data also suggested that a high IQ does not necessarily indicate high creativity.

The results of this study provide some indications that creativity is preceded by a firm grasp of the object concept. The range of the DAP and MAFP responses correspond to the developmental sequence in the drawing of the human figure outlined by Harris and others (Harris, 1963).

This also raises the question of whether training in the concepts of form and combinativity of form would facilitate creative expression. The child who had a clear and well-integrated concept of the body image could produce a response appropriate to the demands of the test instructions to draw or to make a person with felt. He could then transform this in such a manner that an unusual but meaningful and coherent portrait would emerge. There is some reason to believe that the use of felt forms facilitates creativity by helping to overcome the motor limitations present in some preschool children. Further investigation of the conditions when this occurs is needed.

The findings definitely indicate that copying is more difficult than spontaneous representation . . . . Furthermore, it apparently calls for higher levels of integrative ability and visual-motor coordination. The Project Head Start preschool children tested in this study proved to be seriously deficient in these abilities. Training seems indicated. While it may be argued that copying negates individuality in creative expression, on the other hand, if one agrees with Crutchfield (1966) that transfer of training can take place in creative skills without impairing uniqueness of expression, then training in copying would be worth instituting. There would be added advantages too, in that it might facilitate development of skill in copying the blackboard, as well as working from textbook to workbook, and vice versa.

> This finding regarding copying is consistent with Getman's (1965) report about mounting evidence of ocular mobility inadequacy in the lower academic third of the school population. The problem seems to reside in the child's ability to move his eyes in a facile and effective coordination with each other. Any impairment of this process creates stress which interferes with reception and comprehension of information taken in through the visual receptors. In some cases, the strain of trying to cope with this difficulty may be so great that the only possible solution for the child is task avoidance, a pattern that may become generalized to the school situation.

In their second study Clos and Serafica devised a programed text "to train children in some basic art forms in which the world might be divided; namely, a circle, a square, and a triangle."

> Each of the sequences shows the pure form, followed by two reasonable approximations using familiar objects, compound form, three-dimensional form, animal form, and subtle form in the outline of the jaw of a clown. Eight pages are shown on each attached picture. Each page of the booklet has four stimuli, the one in the upper center part is the stimulus object that is to be matched with one of the three figures beneath it. The stimulus object has a "cricket" under it that clicks when depressed, and the form that is to match it also has a cricket under it while the other two forms do not. The result is feedback to the learner of the correctness of choice by clicking sound. The simulus objects and the matching forms are done in vivid colors with green representing the circle, red representing the square, and yellow representing the triangle. The color cue is subtle in that the stimulus object can be any color when it is not an exact duplicate of the form. The continuity of the color cue is that the three figures beneath the stimulus object when the correct response is, say, square always red, or when triangle always yellow, or when circle always green. The reason for not always using the same color stimulus object is to teach the learner form, while still giving a subtle cue of color to help in the discrimination of the correct response. The three sequences of square, circle and triangle are alternated at random so that no sequence of the same form is presented sequentially. A sample of two children, each from a disadvantaged group of children in the age group of five, four, and three, were used to test out the efficacy of the program and to determine the age at which the program was too easy. . . . Five-year-olds were able to go through the total program of 24 frames making only two errors. . . the four-year-olds had somewhat more errors, about 6 errors per 24 frames, . . . The three-year-olds made more errors, about 12 per 24 frames, . . . It would seem then that some revisions will be needed in the sequencing in order to reduce the errors made by the children. The hardest sequencing appeared to be the triangle.
>
> The programed instruction booklet seemed to be properly devised with some corrections so that it can be used with three and four-year-olds to train them in art creativity. The felt forms

which are similar to the geometric figures used in the training program offer a measure of creativity. The next step would be to select a group of three-and-four-year-olds and administer the MAFP, then give the programed instruction sequence, then readminister the MAFP and to note differences. If the training program is teaching an aspect of creativity, then the creativity scores on the MAFP should improve.

An Attempt to Motivate Response on the Binet

Baer (University of Kansas) had a project with Head Start children as subjects which "was intended to show whether performance on the Stanford-Binet test of I.Q. could be increased by reinforcing response to the test items, correct or incorrect, with a tangible, edible, and more-than-social reinforcers, specifically, M & M candies."

> All groups of children [M & M reinforced and non-M & M reinforced] showed an approximate I.Q. of 90 as a result of the first testing; all groups showed an approximate I.Q. of 95 as a result of the second testing. Differences between the groups were negligible in amount and statistically insignificant. Thus, it appears that I.Q. derived from the Stanford-Binet test is insensitive to potentially reinforcing contingencies between any reasonable response to the test and candy. To that extent (which is a slight one), it is not suggested that the I.Q. testifies more to a lack of motivation to answer, perhaps characteristic of Head Start children being tested by the typically white and middle-class tester, than to a lack of the responses tapped by the items of [the] test.

A Statistical Model for Behavioral and Educational Research

Land's study at the University of Texas constitutes a systematic introduction to two procedures which have been developed to aid the representation and interpretation of multivariate statistical systems - path analysis and recursive systems of equations. The first section defines path models and path diagrams. It also develops two elementary applications of the procedure. In the second section, the representation of statistical systems by recursive sets of equations is discussed. Finally, the third section of the paper builds on notions of the two preceding sections by extending path analysis to highly complex systems of relations.

> The author has attempted to provide both a systematic and, to some extent, complete discussion of the topics. Therefore, two appendices review the basic mathematics of least-squares correlation and regression . . . . Furthermore, the author has attempted to show that the notions of path analysis, at least for the systems discussed in this paper, follow directly from the basic statistical notions of least-squares correlation and regression. Finally, a main goal of the paper is to develop enough basic understanding on the part of the reader that he may proceed to utilize the method in his own area of research. Therefore, although the discussion and derivations are on an elementary level, they are accompanied by detailed exposition to provide at least an intuitive and informal understanding of

what is really going on.

These techniques have proved invaluable to the development of biological and economic theory and research. Their use in behavioral and educational research should yield similar profit.

CHAPTER VI

RESEARCH ON THE SOCIAL, EMOTIONAL AND PHYSICAL DEVELOPMENT OF CHILDREN

Research on social and emotional development included development of instruments to measure cooperation and competition, achievement motivation, and self concept. Researchers studied the effect of sex and race upon perception of photographed emotions; fear in young children with their mothers present and mother absent; and expression of aggression as measured by projective techniques and by teachers' ratings. There were several studies of cooperation and competition of children of several ages from several cultural groups. One researcher developed hypotheses and methods for a program of studies on racial identification, self-concept, and confidence.

To gain a better understanding of the disadvantaged preschool child one investigator studied dependency conflict, autonomous achievement, and aggression and their relation to intellectual performance; he also studied effects of preschool experience on personality development.

In a six-week experimental clinical program the focus was on a methodological procedure to study emotional disturbance in preschool children and to assist families, schools, and communities with this problem.

Two studies were done on physical development: collection of anthropometric measurements on Head Start children and a nutritional survey of Head Start Centers.

Perception of Emotions

George Gitter (Boston University) has completed part of "a three phase study of children's perception of emotion investigating the patterns of accurately perceived and erroneously perceived emotions and testing the influence of sex and race differences among both perceivers and expressors." Seven emotions (anger, happiness, surprise, fear, disgust, pain and sadness) were portrayed by actors and photographed. On the basis of results from a sample of Negro and white undergraduate males and females, the investigator drew these conclusions:

> Sex and race differences among expressors and perceivers influence perception of emotion from posed photographs. While at times, the effects of these variables can be noted when their influence is examined independently, at other times they are significant only in interaction with each other. Similar results emerge from findings of the patterning of both correctly and erroneously perceived emotions.
>
> Future research will hopefully answer whether the strong differences due to the race of expressor can be accounted for by white versus Negro subcultural differences in inhibiting the communication of emotions, or by such artifacts as the inability of black and white photographs to capture portrayal of emotion equally well for white and Negro expressors, or by still other alternative explanations.

Cooperation and Competition

Madsen (University of California, Los Angeles) did several studies of cooperative and competitive behavior in which he used new apparati he had developed: The Cooperation Game which uses a rope and ball apparatus, and the Cooperation Board.

In one study Madsen used the Cooperation Game with 36 pairs of four- and five-year-old Head Start children from three ethnic groups (Negro, Mexican-American and Caucasian). Results suggested that "only one person can win" in the individual reward condition or "you can both win" in the group reward condition had little immediate effect on the cooperative-competitive behavior of these preschool children. However, in the group reward condition the children became more cooperative over trials and less competitive. The investigator also found that:

> a disposition to be competitive is more strongly acquired in these preschool children than a disposition to be cooperative. . . . For some preschool children achievement motivation is highly developed and . . . pride in winning may be more important than material rewards. It also seems likely ... that the possibility of cooperating never occurred to many Ss. They

> may have more fully acquired the interaction pattern of competition than that of cooperation . . . .
>
> The results seem to justify concluding that there are differences in patterns of cooperative-competitive interaction among ethnic groups. The Negro Head Start children were most cooperative and least competitive; the Mexican-American Head Start children were least cooperative; and the Caucasian children appeared most competitive . . . .
>
> Finally, the present study suggests that the new [rope and ball] apparatus was sensitive to differences in cooperative-competitive behavior. In future investigations of ethnic variables and other correlates of cooperative behavior in preschool children, attempts will be made to compare new instruments for measuring cooperative behavior with the apparatus described here. . . .
>
> The game involved two children, pulling a rope 46 inches long, with eleven one-and-three-fourth-inch wooden balls, strung at various intervals over 30 inches of the rope, through a two-inch diameter opening in a movable block of transparent plastic mounted at the top of a wooden ramp. The ramp and plastic were attached to a wooden structure that was clamped onto the top of a table. . . .
>
> There were two sets of rope-and-ball sequences, one for each child. The ramp had dividers to prevent the ropes from tangling before reaching the opening. Whenever the ropes were pulled so that two balls arrived at the opening simultaneously, the progress of the game was temporarily blocked. When the pull on the ropes was lessened, the balls slid back down the ramp thus ending the blocking. When the movement of the balls through the opening was halted, the pressure against the plastic block activated an electric counter and timer which automatically recorded the number of such blocks as well as the accumulated blocking time for each trial. If after eleven seconds neither child had succeeded in pulling all the balls through the opening, a buzzer sounded and the trial was terminated. Prizes were inexpensive trinkets such as rings, plastic cars, figures, etc.

Madsen also studied cooperation and competition on the Madsen Cooperation Board of 120 Head Start children (Negro, Mexican-American and Caucasian) and 120 children from a "more upwardly mobile group, and thus more representative of the middle-class population. . . ."

> Results did not indicate any substantial relationship between the socioeconomic factor and degree of competitiveness. Ethnic background was found to affect competitive behavior in only a partial way in that it interacted with sex. Mexican-American boys

> were less competitive than Mexican-American girls, as well as Negro and Caucasian boys and girls. The fact that the vast majority of responses of four-year-old children from all ethnic and socioeconomic categories were competitive suggests that, as Piaget holds, there is a strong cognitive component in competitive *behavior and that this behavior does not emerge, regardless of subcultural differences, until a later age. In other words, four-year-old children may not have the cognitive capacity to cooperate over trials on the task used in this investigation . . . . It seems that an interesting line of investigation would be a developmental study to determine at what ages differences in cooperation and competition become apparent in different ethnic and socioeconomic groups. Further work is also needed to determine whether competitive situations do actually produce . . . more effective learning. In the light of such research, interventions designed to facilitate the emergence of the desired types of social interaction at an early age may be suggested.

In another study Madsen hypothesized that kibbutz children, aged six to ten, would be more cooperative than urban middle class Israeli children when they played the Madsen Cooperation Board with their peers. The hypothesis was confirmed.

> Under the individual reward condition, the kibbutz children showed performance superior to that of the city children. Since both groups had learned the task equally well, as evident by their similar performances under the group reward condition, differences in performance under the individual reward condition can be attributed to different types of motivational stress in urban and kibbutz environments. Thus, changes in instructions produced different behaviors in city children, but not kibbutz children. . . . Once reward was given out on an individual basis, city children changed the tactics they had used to obtain group rewards and began pulling towards themselves. Even though they obviously realized, after trials four and five, that these competitive procedures were not paying off for any of them, they were unable to stop their irrational competition. Perhaps of greater interest is the fact that the children themselves did not enjoy the competition and wanted to change the rules . . . .
>
> Among the kibbutz groups the picture was entirely different. When individual reward instructions were introduced, the first response of most of the groups was to set up rules for cooperation. Some examples of these responses were:

*This appears to be a typographical error in the original report, where the word "cooperative" must have been intended.

> "OK gang, let's go in turns," or "Let's help each other," or "We'll start here, then here, etc."... These children were very organized in their performance. They usually had decided the order before the trial began. During the game they were also very active in directing one another . . . . [Their] responses indicate that a desire to achieve and to do well characterize these children, who do compete with other groups on the kibbutz, but not within the group. At the group level, they cooperate and work together as a team. . . .
>
> In general, the results and observations indicate that when cooperative behavior was adaptive, children of the kibbutz were generally able to cooperate successfully for maximum performance, whereas urban children were usually not able to do so. . . .
>
> In addition to the above study, 16 four-year-old kibbutz children, eight boys and eight girls, were given five trials [on the Madsen Board] under the individual reward condition. All four groups demonstrated strongly competitive behavior. No cooperation, no going in turns, no helping was evident. These results support Spiro's observation that cooperative play on the kibbutz is a function of age. It seems likely that children in the kibbutz are initially as strongly competitive as children in the city, but that after a certain age these tendencies are controlled or channeled into within-group cooperation. It is also possible that successful cooperation involves a level of cognitive development which has not yet emerged with the four-year-old child, but is evident with the six-year-old children. Both of these hypotheses warrant further investigation.

Rosenfeld (University of Kansas) submitted the following abstract which describes his research on cooperation and competition:

> The procedures by which children from lower-and middle-class backgrounds attempt to obtain rewarding outcomes from each other were observed under semicontrolled conditions. Ten male and nine female dyads, each composed of one middle-class and one lower-class preschool child, were required to complete 12 simple block puzzles in which each was given some of the pieces his partner needed. Rewards were given for cooperative or competitive performance, each for six consecutive puzzles. Ss in the two socioeconomic groups demonstrated similar behavioral repertoires. Their behavior usually involved the physical manipulation of puzzle pieces, rather than attempts

> to influence their partners. About three-fourths of all observed interpersonal acts could be categorized into taking, delivering, and demanding puzzle parts. Visual attention was directed primarily toward own puzzle parts and secondarily toward the partner. Middle-class Ss were more successful in general, but their demands were complied with less than were those of lower-class Ss. When competitive conditions were first, Ss emitted more acts in both payoff conditions than when cooperation was first. This effect was strongest among lower-class girls, possibly because of dominance of female models in the lower-class home environment. A followup study on two very low performing lower-class subjects revealed that their responsiveness increased greatly when paired with familiar lower-class partners in their own preschool environment.

Achievement Motivation

Ballif (University of Hawaii) succeeded in identifying a measurement procedure that appears to be both promising as a measure of motivation to achieve and effective for use with preschool children.

> Preliminary studies investigated rating behavior, behavior testing, role-playing performance, semantic differential, sorting, paired comparison, and story techniques and formats with four-year-old children, and provided essential information upon which the procedures for this instrument were designed. The instrument being developed is [individually administered and] presented as a story with semi-structured situations that involve imaginary figures called Gumpgookies. . . .
>
> Work on the construction of this instrument is continuing, to prepare it for use in subsequent formal research to be aimed at teasing out causative classroom variables related to and identifying instructional techniques effective for shaping [achievement] motivation in preschoolers. Exploratory research in this latter area was concomitantly initiated to investigate the possibility that operant conditioning can be employed to increase autonomous questioning behavior that is instrumental in achieving.

Ballif proposes:

> to design a curriculum to "teach" motivation to achieve to four-year-old children based on empirical evidence gathered in part through the instrument under development.... Extensive research appears necessary to demonstrate the control of variables determining motivation to achieve in instructional settings, the effect of such manipulations on motivation to achieve in preschoolers, and the interaction of such motivation in the intellectual development

> of young children. A variety of instructional environments, procedures, and materials needs to be developed, designed to define appropriate behavior and goals, to shape concepts and skills, and to develop human relations essential for the learning of motivation to achieve. Although potential research projects are numerous, their success hinges upon valid empirical evidence, the gathering of which may be facilitated by the availability of the instrument under development within this project.

Stern (UCLA) described some ongoing projects:

> A major line of research at the UCLA Evaluation and Research Center is the development of instruments to objectively measure changes in children's behavior in both the cognitive and affective domains. . . .
>
> In the affective domain, several approaches to evaluation are being tried out. The child's concept of himself as a person will be tested through a series of pictures of boys and girls of various ethnic origins, to determine how the children see themselves. A second line of investigation is the development of an instrument to measure the child's sense of his own competence in a variety of situations. Two sets of ten picture cards, one showing boys and the other girls, in a variety of problem confrontations, have been prepared and are now being tested cross-culturally to establish scale values. When this instrument has been validated, it will be used as a pre- and post-test measure to determine whether increasing a child's actual competence results in a measurable change in his feelings of competence.
>
> Another approach to measurement in the affective domain is still in the planning stage. This new test will involve some type of game situation, such as concentric circles on a square of linoleum in which the task will consist of the child's throwing a beanbag to see how close he can get to the center. A box of trinkets (reinforcers) will be made available and the child will be told to take one whenever he feels he has made a particularly good throw. The situation lends itself to a variety of manipulative procedures in which to pose a number of extremely important questions related to motivation and aspiration. If the pilot work with this task proves successful, a number of similar items will be devised to provide a series of tasks for a behavioral scale.

Dependency, Achievement Striving, and Aggression

Beller (Temple University) has been working for a number of years on three areas of personality functioning in middle-class children: emotional dependency of children on adults, independence or autonomous achievement striving, and aggression. His particular interest in further investigation of these areas in deprived lower-class children was "to gain a better understanding of the dynamics and patterns of interaction between these personality functions in the disadvantaged preschool child." A second matter of interest to him was "the relationship between a child's personality and his intellectual or academic achievement."

To investigate the structure and dynamics of personality functions in lower-class disadvantaged children, Beller collected data on over 300 preschool children."

> [It is] apparent that the patterning and structure of dependency and independence are radically different in the lower-class child than in the middle-class child. There is very little consistency in the manifestation of emotional dependency in lower-class children, particularly in boys. This finding suggests that lower-class children, particularly boys, do not experience much stability in their interactions with their parents, especially with regard to the gratification of dependency needs for support, praise, attention, and affection. The same conclusion is suggested by the findings . . . with regard to independence or autonomous achievement striving. There is no inner consistency with regard to a child's taking the initiative, persisting, and completing what has been initiated. Thus, it would seem that the lower-class deprived child does not have stable experiences with regard to early exploratory activity and

autonomous attempts to master his environment. Only the area of aggression shows the same amount of internal consistency as we found in middle-class children.

These radical differences in the patterning of personality functioning between middle-and lower-class children have important implications. To begin with, they reflect a background of inconsistency in socialization practices and interpersonal relationships between parent and child. More importantly, they reflect a disorganization and lack of cohesiveness in two vital areas of personality development, namely, dependence and independence. Since these data are based on the study of the child's functioning in relation to his teacher and in the nursery setting, they are of considerable importance for educational planning. Children who do not relate consistently to the teacher, and children who do not function consistently in their independent achievement efforts in the classroom, may be more difficult to educate in the sense of helping a child to relinquish gradually his emotional dependence and assume greater responsibility and self-sufficiency in his daily life. If children show little inner consistency in these areas of their functioning, it would seem to be inefficient to apply the same expectations and educational practices to these children as one usually applies to middle-class children. Thus, one of the basic values of these data is that they show precisely how the lower-class disadvantaged child differs from the middle-class child in his personality dynamics, and by implication, that the educational objectives and methods applied to the middle-class child will be misapplied if carried over without considerable modification to the deprived lower-class child. Moreover, these findings suggest that the provision of stable relationships between a nurturant adult and the child and the provision of stable experiences in the child's most elementary attempts to master his physical environment might be much more important as a first step in the educational process of these children than in preschool education of middle-class children. Repeated measurement of data such as these and repeated analysis to trace progress in the child's development towards greater inner consistency in his emotional dependence on adults and in his development of self-sufficiency or autonomous achievement striving might be a sensitive criterion for relaxing emphasis on stability and permitting greater diversity in the educational program and curriculum of these children. Whether one decides on this or an alternative course of action is less important at the moment than the realization that our data and the analysis we have carried out indicate a specific area and direction in which our attention must be focused in planning preschool programs for disadvantaged lower-class children.

Another personality variable which Beller has studied intensively in both middle-class and lower-class children is dependency-conflict. He defined dependency-conflict:

> as the difficulty a child has in accepting his dependency needs and in permitting himself to turn to this protective environment for emotional and physical support. Thus, a child who is conflicted over his dependency is a child who will be inhibited in expressing his needs for help, affection, and attention; who will use indirect and devious ways of getting gratification of his dependency needs; and finally, a child who betrays his conflict over dependency by fluctuating irrationally and unpredictably between excess and over-control in his manifestations of dependency needs . . . . Analysis illuminates the place of dependency-conflict in the personality dynamics of our children. First of all . . . dependency-motivation and dependency-conflict are almost entirely uncorrelated. This is an important finding because it demonstrates that we have succeeded in constructing two separate and different measures of dependency: one of these deals with the intensity of a child's dependence striving, while the other deals with the degree of conflict he experiences or manifests in his dependency needs.
>
> The relationships between dependency-conflict and autonomous achievement striving as well as aggression are of substantive importance. The more conflicted a child is over his dependency, the more impaired is he in his autonomous achievement striving or in his self-sufficiency. Thus, those disadvantaged children who are inhibited in turning to the adult environment for help and support fail to develop a high level of motivation to function independently and self-sufficiently. To put it in another way, the disadvantaged lower-class child who does not trust his environment sufficiently to seek and make use of physical and emotional support that might be available to him fails to develop confidence in himself to function independently and self-sufficiently. Finally, the relationship between dependency-conflict and aggression is less strong but still statistically significant and quite important. Children who have conflict in the area of dependency also have difficulty in controlling their aggression. Thus, the child who is conflicted over his dependency not only fails to develop self-sufficiency, but also seems to experience difficulty in controlling his aggression. Both relationships, especially the former, appear to increase with age. . . .
>
> When we turn to the relationship between personality and intellectual performance in our children, we find that autonomous achievement striving and dependency-conflict

> related consistently in opposite direction to performance on intelligence tests . . . . Autonomous achievement striving correlates consistently positively with performance on three different intelligence tests, whereas dependency - conflict correlates consistently negatively with performance on the same three tests. Among these children, the more motivated a child is to be self-sufficient in coping with his environment, the higher is his intellectual achievement as measured by our tests. However, the more inhibited a child is to manifest his dependency needs and turn to his adult environment for support, the more handicapped a child is in his intellectual achievement. The fact that the magnitude of these relationships increases with age on two of our tests suggests that they might reflect a developmental process in our lower-class deprived children.
>
> These findings have clear implications for curriculum planning, especially during nursery and kindergarten. Much thought should be given to procedures for encouraging these children in their autonomous achievement striving, that is, in their efforts to explore things on their own and to carry through to completion what they started. Even more important seems to be the need for helping these children to develop greater trust in their adult environment to overcome their inhibitions and conflicts over turning to protective adults for emotional and physical support. To judge from our findings, such efforts would greatly enhance the effectiveness of programs for training these children to become competent in areas of intellectual achievement.

With respect to personality of children and their readiness to gain from an educational process, Beller reported work with three groups of first grade children: Group I attended an experimental nursery school and kindergarten, Group II attended kindergarten, Group III had no schooling prior to first grade.

> First graders who had the experimental nursery and kindergarten experience appear to be higher on dependency on teachers, on aggression, and on autonomous achievement striving than children from the other two groups. The same group of children are lowest on conflict over dependency. . . . Therefore, the present finding that both Groups I and II, which had preschool experience, are higher in autonomous achievement striving and lower in dependency-conflict suggests that an increase in autonomous achievement striving and a decrease in dependency-conflict may be related to significantly higher intellectual performance of these same two groups on three different tests of intellectual achievement. In other words, children who have had the benefit of preschool experience are more highly motivated to be self-sufficient in their achievement striving and simultaneously have greater trust in their adult environment so that they seek from it the physical and emotional support which it has to offer . . . .

> What then is the meaning of increased dependency and aggression in children from Group I, that is, those who had the nursery experience? It may simply mean that these children have developed a closer emotional bond with the teacher, which represents a delayed development of what occurs normally in middle-class children of our society. . . .

In training teachers to rate children in areas of dependency, autonomous achievement striving, and aggression, Beller reported that he encountered considerable resistance from teachers who had the same background as the children they taught when he asked these teachers to report incidents of aggression.

> Time and again, I was confronted with the statement that these children do not manifest any aggression, particularly in the nursery and in kindergarten. Apparently, a good many of these teachers were reluctant to either perceive or permit aggression in these lower-class, highly deprived children coming from backgrounds which generate a great deal of frustration, and therefore, at least the potential for aggression. The difficulty these teachers experience in either perceiving or accepting aggression in deprived preschool children greatly weakens the efficiency of their potential effectiveness as socializers of aggression. By denying or suppressing aggressive behavior in the nursery or in kindergarten, the teacher simply pushes the aggression out of the classroom and removes herself as an effective agent in modifying the child's ability to cope with hostile and aggressive impulses.

Additional data from Beller's follow-up group showed "that the children with a background of nursery and kindergarten had the highest percentage in the groups with the best attitudes . . . towards study and learning, and . . . towards school in general. . . ."

> The ratings on children who were especially able vs. those who were especially slow in their work and on most [popular] vs. least popular children in the classroom went in the same direction, that is, a high percentage of most able or popular ones in the groups with prior schooling and a low percentage of especially able or popular ones in the group with no previous schooling. However, these differences fell short of significance.
>
> The same ratings were redone at the time of the first report card in the second grade . . . , These findings confirm the earlier ones obtained at the end of first grade with the only difference that the effect of earlier educational intervention on ratings of pupil's ability in the classroom has now become highly significant. These data offer evidence for the beneficial effects of preschool and kindergarten experience on the child's attitude towards learning and school in general. Early educational

> intervention affects not only cognitive functioning and academic achievement but also the child's attitude towards learning and towards his school.

Dorman (Boston University) used projective measures to study Head Start children's ability to express aggression and related the test-displayed aggression with teacher's ratings of overt aggression. She found little correlation between the two. She concluded that "The children who were not able to express aggression in the projective situations were those who were less verbal and less cooperative on a task that involved some foresight." Results suggested to Dorman an hypothesis for futher study:

> The relationship between expression of aggression and ability to learn is the subject of a study currently being planned by the author. If this relationship can be shown, it will have implications for the kinds of programs set up for those children who have learning difficulties. The freeing of appropriate aggressive responses might lead to increased freedom to deal appropriately with other aspects of the environment, such as the learning situation.

Self-Concept and Racial Identification

Stabler (Southern University) developed hypotheses, methods, and a proposal for a research program concerned with racial identification, self-concept, and confidence. In his discussion he wrote:

> There is a need for more research on problems associated with racial identification and child development. The number of studies that have related children's perception of race and child development is small relative to the importance of the issue. The hypotheses that white and Negro children suffer developmental problems because of racial perceptions should be buttressed by more extensive and programmatic empirical research. Such research presumably would offer not only validation of the hypotheses, but also would point to ways that parents and educators could avoid or mitigate the harmful effects of children's introjecting negative racial attitudes .

Stabler proposes eight studies to explore the following questions:

1) What differences are there between Negro and white children in evaluating the "goodness" or "badness" of assorted objects? Is there a relationship between object evaluation and gradations of skin color in the Negro child?

2) Do both Negro and white children associate "bad" objects with the color "black" and "good" objects with the color "white"?

3) Do Negro children whose scores indicate positive concepts of self more frequently associate "good"objects with black as opposed to Negro children with negative self-concepts? (The experiment would be replicated with a matched group of white children. Such factors as the race and sex of the experimenter also would be explored.)

4) Do white children identify with portrayals of white animals and Negro children with black animals? It is expected that the latter identification will be less consistent.

> It is also expected that, in general, approach-type responses will be elicited by similarly colored animals and avoidance - or attack-type responses will be elicited by dissimilarly colored animals. The type of response is expected to vary with the nature of the interracial experiences of the child. Expressions of approach or avoidance will tend to vary systematically with the degree of interracial experience, i.e., whether the child has been in an integrated Head Start program or in a segregated preschool situation. . . .It is expected that the black animals will be perceived by children of both races in a less positive light than the white animals.

5) Are Negro children, because of more adverse racially related experience, more pessimistic than white children? (The anticipation is that the effect will be particularly apparent when the experimenter is Caucasian.)

6) Do white and Negro children vary in their perception of the locus of control of external reward; i.e., whether they think obtaining a reward is a matter of luck or of skill?

> The psychological environment of the Negro child can be expected to reflect a more pessimistic outlook relative to control of their destinies than that of their white counterparts . . . . A preliminary study is now being performed using an instrumental conditioning apparatus.

7) Are there racial differences in perception of need to comply with instructions to do something one would rather not do? "Sex, age, and race differences of S̲ and E̲ will be varied in factorial design experiments ."

8) Are there racial differences in children's visual self recognition? "The point at which S̲ recognized himself presumably would vary for white and Negro children."

The abstract of another study of self-concept by McDaniel (University of Texas) is presented below.

> The purpose of this investigation was to determine functional relationships which exist between the self-concept of low-income culturally different children and specific organismic and behavioral variables. The organismic variables examined were: race, sex, family size, birth order, and grade level. Behavioral variables consisted of test responses on standardized group tests of intelligence and of achievement. In addition, changes in self-concept after six months of school attendance were examined. The development of an instrument, considered suitable for assessing the self-concept of the low-income culturally different child in a school setting, was undertaken in order to obtain the data.
>
> The Inferred Self-Concept Scale was constructed by having eight judges of varying professional backgrounds... select items from a 100-item list that each thought would be useful to teachers, counselors, and others for appraising a student's self-concept. Seventy-five percent of these judges achieved consensus on 37 of the items, [which were reduced to 30 items because seven appeared to be repetitious].
>
> The teacher of each child involved in the study and the counselor at the school where the child was a student were asked to rate, independently, these children on the 30-item, 5-point self-concept scale. This procedure was repeated in six months. Intelligence and achievement test scores were obtained from personal cumulative folders. Personal data necessary for classifying the children according to specific organismic variables were also obtained from these folders.
>
> The [sample] which provided the data for this study was composed of [180] students, [90] teachers, and [16] counselors at 16 [Title I] elementary schools....[Students were] from grades 1, 2, 3, 4, 5, and 6....
>
> Analysis of the data reveals that the self-concept of the low-income culturally different child in the elementary school setting is scored as "positive" on the Inferred Self-Concept Scale, whether the child is Anglo, Mexican-American, Negro, male, female, from a large family, from a small family, an oldest child, a non-oldest child, or whether the child is in grade 1, 2, 3, 4, 5, or 6. In examining differences between: races, sexes, grade levels, family sizes, and between birth orders, the only significant difference obtained was that between races, with Anglos having a self-concept significantly different from Mexican-Americans, [higher] but not significantly different from Negroes. Further investigation revealed that this difference was significant (.01) only in the fifth grade. There was no significant difference between groups in the amount of change

> during the six months' period between ratings of self-concept, although it was determined that self-concept decreased significantly for the total sample during the six months' period. [The investigator felt this was the most important finding.] Significant [positive] relationships were established between self-concept and intelligence for Negroes, males, females, children from smaller families, oldest children, fifth graders, and for sixth graders. No significant relationships were established between self-concept and achievement, when intelligence was held constant, for any of these groups.

Fear and Attachment

Schwarz (Syracuse University) exposed "children three and one-half to five and one-half years old . . . to a fear stimulus either in the presence of their mothers or in the presence of an adult female stranger in a test of a hypothesis derived from attachment theory."

> Ratings were made of facial expression, movement about the room, and visual orientation over a 5 minute period. The results failed to support the prediction of less fear in the presence of the mother . . . . It was suggested that the presence of the stranger inhibited motility and emotional communication . . . . Since this study is inconclusive . . . other studies with additional experimental and control groups are planned.

Emotional Distrubance

The one study concerned with emotional disturbance in children was that of Garfunkel et al (Boston University).

> During the summer of 1967, a six-week experimental clinical survey with a selected small number of preschool children ranging in age from 3 to 6, from two differing social class communities, evolved a methodological procedure that would assist in clarifying the issue of emotional disturbance and potential emotional disturbance in young children. The primary thrust was to set up closely coordinated interdisciplinary teams that could interact with preschool systems and their representatives on a consistent longitudinal basis . . . .
>
> The interest, too, was in sensitizing professionals . . . [teachers, psychiatrists, psychologists, and social workers] . . . to their own profession. We were particularly interested in seeing how training psychiatrists in

> the school setting could increase their awareness of the total functions of the child, particularly in helping them to recognize the efficacy of certain teacher interventions, groupings and styles. We wanted to see how teachers would respond to the insights of psychiatrists and psychologists in mutually observing the manifest behavior of a child.
>
> Finally, suggestions were to be made to communities to help them develop resources within their own school systems and family services to help disturbed children. The practical problems of effecting change in established systems, such as the schools, are of considerable importance at this time. The question was considered as to how communities can be motivated to change and adapt their systems to the changing demands of the society around them.
>
> In summary, the clinical approaches of this study led to increasing our knowledge of how professionals change in changing settings. Methodologically, participant observations of interdisciplinary groups led to sensitizing professionals which in turn, hopefully, led to benefiting the child in his variable social settings . . . .

The investigators pointed up a number of practical considerations in work with children as well as needs for further research.

> In our experience in dealing with sub-communities, such as the schools, that have not been anxious to explore areas such as emotional disturbance, we have found that it is impossible to do decent research or even get into the schools unless you are able to promise and carry through on specific service to the children and to the teachers and the families . . . .
>
> It is most important that these children continue to be followed in the classroom as the year continues. We need more longitudinal information on these children, not only in their own development, but in general growth. We need to know a great deal more about the values of these children and their families. There is an inherent danger in providing these children with what we believe is an optimum program when this program is contrary to the values and expectations of the community involved . . . .There is an element of tragedy in setting up classes which are destined to guaranteed failure of the child in the setting to which he will return . . . .

> Of great importance . . . is the question of feed-back to the community. It is most important that the agencies not only get the material as quickly as possible, with recommendations and findings on each child, but that they be responsible and prompt in getting special reports to the teachers and providing any follow-up discussion that might be necessary . . . .

The investigators made a number of suggestions as to how greater teacher effectiveness can be achieved.

> Primarily, the work with the teacher is one of communication: interdisciplinary communication, and communication with administrators as well as with children . . . .
>
> We were confirmed in our hypothesis that in certain situations, it was more efficacious to have professionally trained workers rather than indigenous, nontrained aides . . . . The main idea [would] be to get the community to work for itself, have the neighborhood workers give us gross information about the families, and be a public relations person for the program, and let the probing interviews and delicate subjects be approached by professionals not living in the immediate neighborhood.
>
> The psychological testing raised several questions. Here it was felt that a professional, not a student in training, was needed to get the information from these young children. . . . [Testing of inner city children particularly] requires a sophisticated tester . . . .
>
> We would like also to have noted changes in the classroom; that is, . . . differences in cognitive style as the child approached diverse tasks and added stress; . . . the effects of different teaching styles and demands on different cognitive styles; . . . the attitude of the child towards education and towards white people; . . . [and his] handling of failure and his expression of aggression.

Studies of Physical Development

Two studies were made in this area. In one of these, Bass (University of Kansas) took measurements on 148 Caucasian children in Head Start. The measures included "general body, head and face dimensions, as well as dental observations." Analysis of data has not been completed.

A portion of the abstract of the second study,"A Nutritional Survey of Head Start Children," by Cross (University of Kansas) is presented below:

> This study was undertaken to evaluate the effectiveness of using a questionnaire to evaluate the nutritional status of children in Head Start centers in rural, small city and metropolitan areas in central United States . . . [and] to obtain knowledge of foods which the children were familiar with and liked. The only quantitative data that we attempted to obtain was with respect to the quantities of milk consumed daily . . . .
>
> We obtained and analyzed one week menus from each of the Head Start centers involved in this study to determine their contribution to the nutritional status of these children . . . .
>
> The nutritional analysis of the Head Start center menus indicated that the centers which we studied were providing adequate amounts and varieties of food for children of this age.
>
> There were no significant differences in the food preferences of the children in the three different areas studied nor in the types of food served in the centers in these areas.

CHAPTER VII

INTERRELATIONSHIPS AMONG VARIABLES: COGNITIVE, SOCIAL AND EMOTIONAL

Research at three universities is described in this chapter. One project involved the study of the interaction among measures of intelligence, achievement, and behavior in groups of preschool children. Another investigator looked at differences, in terms of dependency demands and kinds of reinforcement received, between children who had gained on the Stanford-Binet versus those who had not. Related aspects of this study are described in Chapter VI.

Much of the chapter is devoted to a report of a project at Syracuse University where many components of children's cognitive functioning and behavior were examined as well as the interrelation of these variables to teachers' and teacher aides' perceptions of the children.

Interaction: Intelligence and Behavioral Measures

Hess et al (University of Chicago) attempted "to determine the degree to which certain behavioral measures interact with intelligence, whether in a linear or curvilinear fashion, to help one predict academic achievement in Head Start children to a greater degree than would be possible were intelligence test performance alone used as the predictor variable."

Subjects included two groups of Head Start children, one from lower-class homes and the other from middle-class homes. Intelligence was measured by the Stanford-Binet and the Caldwell-Soule; behavioral measures were three rating instruments: the Zigler Behavior Inventory (Aggression, Verbal-Social Participation, Independence, Achievement-Oriented Behavior), the Readiness Checklist, and the face sheet of the Binet. The children's school achievement was measured by the Metropolitan Test of Reading and Number Readiness and grades at the end of the semester.

The investigators concluded:

> The majority of success criteria appear to interact in a linear fashion across behavior areas, and what slight indications of curvilinearity do occur appear across high I.Q. groups on a number of the Report Card Summary Areas and across all I.Q. groups on Readiness Checklist items in interaction with the behavior areas of Aggression and Verbal-Social Participation. The majority of curvilinear trends, however, are trends lacking an even distribution of magnitude of difference across the behavior levels, and in most cases the greatest magnitude of difference occurs between moderate levels and one of the two extreme levels, with only minimal differences appearing between moderate behavior levels and the alternate extreme level.
>
> For this Head Start sample, then, few conclusions can be drawn from the results of this study. While the results of the analyses are, with few exceptions, not entirely clear-cut, they are provocative in their implications. As indicated above, there is evidence that on tests or ratings which profess to objectively measure achievement, scores of high I.Q. children seem to be significantly more greatly affected by differences in level of Aggression, Verbal-Social Participation, Independence, and Achievement-Oriented Behavior than do scores of low I.Q. children. This suggests that handicaps in those performance areas assessed by intelligence tests cannot be effectively mediated through the adoption of optimal behavior patterns. But it has also been seen that behavior patterns of low I.Q. children appear to facilitate or impede general adjustment to the school environment, as measured by teachers' Report Card Ratings, more than do behavior patterns of high I.Q. children,

> especially in Behavior Inventory Summary Areas of Aggression and Independence. Optimal adjustment to the school environment in these low I.Q. children might eventually facilitate effective contact with the types of intellectual stimulation afforded by the school, and this in turn might, over time, lead to significantly greater achievement on objective tests. It is unfortunate that the follow-up program was limited to only the first half of the first year in school.

Possible Variables Related to Change on the Stanford-Binet

Beller (Temple University) reported that he has completed data collection but not analysis, comparing gainers, non-gainers, and losers on the Binet among children who have attended a full year Head Start program. In this study he investigated the relation between Binet change and certain aspects of dependency and reinforcement.

> The study attempted to investigate the following questions: 1) Do gainers make different dependency requests of teachers than non-gainers or losers? 2) Do gainers make different use of help received from teachers than non-gainers or losers? 3) Do gainers react differently to no response or rejection from teachers of their dependency requests, e.g., reasserting their requests, seeking gratification from other adults or peers, or attempting to substitute independent activity for the nurturance and help that was not forthcoming from the teacher vs. regressing, withdrawing, or manifesting displaced aggression? 4) Do gainers receive more reinforcement in the form of attention from adults or peers for individual achievement oriented behavior? 5) And finally, are gainers more able than non-gainers or losers to solve problems under conditions of intrinsic reinforcement?
>
> The first four questions were investigated by means of an observational technique which involved observing sequences of child behavior - teacher reaction - child reaction to teacher reaction. The fifth question was investigated by means of an experimental learning situation consisting of 30 trials in which the child had to learn a concept involving discrimination of color and form.
>
> Each of the 36 subjects was observed over six 15-minute periods. The observations were carried out by six different observers who were assigned randomly to cover the observations of each child.

Cognitive, Social, and Teacher Variables, and Behavioral Change

Lois Hayweiser et al (Syracuse University) studied children in a six-week pre-kindergarten program. Although the investigators' interest focused somewhat on demonstrating change as a function of the intervention, the primary concern was with "the relationship of cognitive, social, and teacher-aide variables and observed behavioral change."

> Several considerations provided direction for the instruments employed in the evaluation. There was every reason to expect that the six-week experience would bring about significant gains in Stanford-Binet performance. The reasons for the gain, and their meaning in terms of changes in intellectual competence, were unclear. Thus, it was our hypothesis that the higher I.Q.'s typically found on post-test Binet performance do not reflect change in cognitive structure. Our position, which is consistent with that proposed by Zigler (1967), is that observed increases in I.Q. reflect change in some aspects of the child's motivation. More specifically, it was assumed that children are more willing to emit responses, both verbally and emotionally, because of an increased confidence in adults derived from positive encounters with adults during the intervention experience. One aspect of our assessment procedure, therefore, was to evaluate changes in the children's willingness to emit responses to the various cognitive demands of the Stanford-Binet.
>
> Another aspect of our assessment of cognitive behavior focused on "cognitive style" . . . . It would appear that a lack of "motor inhibition," or "impulsivity", is a general style pervading cognitive behavior and which may also influence social behavior. . . .
>
> A second broadly defined area of the evaluation focused on the adequacy of the children's social behavior. Of concern here is the relationship between the teacher's perception of the adequacy of the child's social behavior and Binet gain. Our assumption was that children who conform more to the demands of the classroom situation are preferred by teachers and they therefore provide them with a more conducive learning environment. Rosenthal (1967), for example, shows that the teacher's initial perception of her pupils influences the amount of gain reported. A scale concerned with children's adaptive classroom behaviors was developed, in collaboration with the teachers, and administered on a pre- and post-test basis. At no time were the teachers, or the aides, aware of the child's Binet I.Q. so that all ratings can be considered independent of any obvious biasing effect.

> A third consideration in designing this project was an examination of the teachers' as opposed to the aides' perceptions of the children. One might speculate that teachers view children differently from aides because of their more academic orientation. Aides, it might be presumed, accept this role for a variety of motives, one of which is most likely to be that they enjoy children. One might anticipate, therefore, that the aides' perception of children is less influenced by their estimate of the child's intellectual ability, or by his level of achievement. An alternative reason for expecting differences derives from the fact that aides generally are not as experienced in judging groups of children in a classroom situation as are the teachers. . . .
>
> A final consideration in the design of this project was to provide an assessment of the effects of a six-week intervention experience in comparison with children from the same population not having the experience.

Subjects were 33 lower-income level preschool children whose mean age was five years-five months (S.D., 6.9) and whose mean Binet I.Q. was 90 (S.D., 16.8). Three teachers, two of whom were female, were assisted by three female aides who were in college teacher preparation programs.

The cognitive measures included the Binet and ratings (by the Binet testers) of the children's responses during testing in terms of Work-No Work Categories adapted from Hertzig et al. These ratings reflect a child's response "to cognitive demands under, at least, somewhat stressful conditions."

The several measures of impulsivity included the "Draw a Line Slowly" (DAL) Test which has previously been reported by Maccoby et al and Hess et al. "This task requires the child to draw a line, beginning at the top of a plain 8½x11" piece of paper and proceeding to the bottom of the page, as slowly as possible . . . ."

> The second impulsivity measure was the Walk-a-Line Slowly Test (WAL). In this task two six-feet-long parallel lines of adhesive tape, five inches apart, were placed on the floor. The child was instructed to place one foot on each tape. The task was given under three conditions, in the following order: 1) "I want you to walk to the end of the tape making sure you do not stop off the lines." No instructions concerning speed were given. 2) "Now I want you to walk the line as slow as you can." 3) "Now I want you to walk the line as fast as you can."

> Two measures, not previously reported by other investigators, were used. One measure was an adaptation of the "Perceptual Speed Test" (PST) subtest from the Primary Mental Abilities Test, Primary I Battery. This test requires the child to match a standard against four alternatives. In addition to using the standard scoring system of recording number of correct responses, a latency to first response measure was used and a correction procedure in which the children continued responding to each item until making a correct choice. A short latency was assumed to indicate a lack of careful analysis of the response alternatives . . . .
>
> The final cognitive measure involved a modification of two WPPSI mazes . . . . [The modification] was designed to measure impulsivity with a more difficult paper-and-pencil task than was involved with the DAL . . . .

Social behavior measures included The Adaptive Behavior Rating Scale (ABRS) which was developed by the investigators. They asked the three teachers to "describe a maximally adapted and maximally maladapted kindergarten child." From the behaviorally stated descriptions, 62 statements were selected for the final scale. Teachers and aides completed the scale for each child, before and after the summer session. The index of internal consistency yielded a reliability estimate of .86.

A second measure of teacher perception was a man-to-man rating technique adapted from procedures described by Gardner and Thompson. The third assessment of social behavior included observations on approximately one-half of the sample; the categories of behavior for these observations were broadly defined: conformity-non-comformity, non-verbal communications, incomplete verbal communications, complete verbal communications, and attentional changes.

Two measures of classroom and home stimulation were secured for each child: the Inventory of Home Stimulation (STIM), developed by Caldwell, and assessment in terms of the teachers' and aides' use of "praise" and "blame."

> Although the various indices reflect specific theoretical biases, it should be made clear that this is an exploratory study. The Syracuse Center is currently attempting to cross-validate some of the more promising relationships and hopes that other investigators may wish to work with some of the measures. Until such validating studies are conducted the measures should not be used for other than research purposes.

Results of the intervention program showed that the average gain in Binet I.Q. was 6.1, with the brighter children making the greatest I.Q. gains. Performance on the Perceptual Speed Test (PST) also improved significantly over the six-week period.

Analysis of the Draw-A-Line-Slowly (DAL) Test showed that the change in performance from pre- to post-test was not statistically significant, but there was considerable consistency in relative position on the pre- and post-tests.

> [There was] a tendency, which is not statistically significant, for greater improvement to occur among the initially better performers on this measure. That this correlation is low may reflect a ceiling effect in that initially low performance by some of the children could just not be improved upon. It is noteworthy, however, that among the highly impulsive children there was apparently little general gain. A similar result was found on the Walk-A-Line-Slowly Test where again the difference between the pre- and post-test measures was not statistically significant. The measure of consistency for the WAL was lower (but statistically significant) than that found for the DAL (r = .41). There is no apparent reason for this difference unless, in fact, the WAL is a less reliable measure. The correlation between pre-test performance on the WAL and difference score is negatively related (r = -.55) indicating that initially slow performance is associated with slower (less impulsive) performance on the post-test.
>
> Performance on the WPPSI mazes in terms of pre- and post-performance indicated a significant increase in the speed with which the tasks were performed but there was no significant decrease in the number of errors . . . . These results suggest that when children are not given specific instructions to perform a task slowly, there is a tendency, at least with respect to the maze task, to speed up performance . . . .
>
> One of the primary concerns in this project is the teachers' perception of the children. Recall that we administered an adaptation of the Syracuse Scales of Social Relations asking each teacher and aide to rate each child with respect to academic capability. Examination of the results of this procedure . . . indicates that neither the teachers nor the aides felt that there was significant change in the youngsters over the six-week period. It should be noted that, on the average, both the teachers and the aides rated the children to a considerable degree at the low end of the scale. As anticipated, there was a significant tendency for the aides to rate the children higher on the pre-test... [but] this difference disappears on the post-test with teachers and aides rating the children approximately the same. . . .

On "personal attributes", from the Syracuse Scales of Social Relations, the teachers and aides placed the average child in the sample in the almost exact middle of the scale. "This is in contrast to the very much lower ratings given to the children on the 'academic' attributes scaling . . . . Personal attributes, as defined here, refers to the general social attractiveness of the children and not to any particular attribute of social behavior."

There was no significant increase in the work vs. non-work responses to the verbal items on the Stanford-Binet in the percentage of work responses; however, there was a significant increase on the performance items. It appeared that an increase in work response was "more beneficial to children of average or above average ability than to children of low ability."

Results from data which have been analyzed on the measures of social behavior showed that the only significant change occurred for the ABRS. Post-test results were higher and suggest that the children developed more adaptive behaviors.

With respect to the use of "praise" and "blame" by the teachers and aides, results showed that they tended to use more blame than praise. "Some children learn very early to expect disapproval from school personnel."

In their discussion, the investigators wrote that although all of the data analyses are not completed, several implications might be drawn:

> It is clear that in our sample a meaningful proportion of the variance in Stanford-Binet performance is related to performance on the "impulsivity measures." In particular, we are impressed with the relationships between the DAL [Draw-A-Line], the WAL [Walk-A-Line] and Binet performance, because neither the DAL or the WAL would appear, on the surface, to be a measure of what is commonly called "g". This is particularly clear with respect to the WAL test where no relationship was found between walking a line fast and Binet performance but where correlations of .50 were found between walking a line "slow" and Binet and walking a line without any particular instructions and Binet. The "no instruction" condition would seem to indicate how children respond to a variety of demands in a more naturalistic setting. Thus a hypothesis that impulsive children respond to a broad variety of stimuli, both relevant and irrelevant, in their environment without integrating them or establishing appropriate response patterns to these stimuli seems to be indicated. Our data, along with those reported by Maccoby et al (1965), suggest that the deleterious effects of impulsivity are as apparent among children of superior intellectual ability as among those with low normal ability.

Perhaps the most significant aspect of our findings with the DAL and WAL is the fact that no relationship was found between "fast" condition and the Stanford-Binet. This finding coupled with the fact that the difference in time under the "slow" and "fast" condition was statistically significant suggests that the correlation between the "slow" conditions and the Binet is not an artifact of understanding the instructions.

Our findings with respect to the children's responses to the cognitive demands of the Stanford-Binet were somewhat disappointing in that increases in percent work responses were not especially related to increases in Stanford-Binet I.Q. Apparently, our hypothesis was only accurate for those children in the middle I.Q. range of our distribution, but not for those children on either extreme. This raises certain interesting questions. One possibility is that improved motivation leads to a greater tendency to give relevant responses to the Stanford-Binet. This assumption was supported by our data but, as already noted, increased work responses were not demonstrably related to I.Q. gain. In this context it should be kept in mind that the designation of a "work" response is not determined by whether or not the answer given to the question is correct. Thus a child who increases in "work" responses is now putting out a necessary but not sufficient response in order to get a Binet item correct. It may be hypothesized then that in order to get an item correct a child must both have a set to work at answering and also have acquired the necessary content. It would be expected that a general "non-work" mode of response would mitigate against learning throughout the child's development. A change in tendency to work, therefore, would not result in an increased Binet score unless or until the work tendencies had operated in the acquisition of sufficient content to enable the child to have the "right answer" response in his repertoire. A change in "work" tendency may then be seen as a very real improvement with which other cognitive inputs will interact.

Another possibility, more difficult to examine empirically, is that initially poorly motivated children in fact emit work responses but make little or no effort with respect to the accuracy of their response. Indeed, examiners have been known to report that children sometimes seem to make errors on purpose. If this were the case, our work-non-work categories would be unable to detect such subtle changes in behavior.

Several aspects of the results of our examination of the teachers' perceptions of the children merit comment here. As just about everyone would expect, on the basis of studies such as Rosenthal's (1966), the teacher's perceptions of children's social adaptiveness is significantly and positively correlated with intelligence. This finding occurs despite the substantial precautions taken to avoid communicating to the teachers about the intellectual abilities of the children. The issue may not be as simple as the notion that teachers like bright children only because of their intellectual competence. Our data suggest, for example, a tendency for the less able children to display a greater degree of impulsivity. Many of the adaptive behaviors specified by the teachers require, for example, substantial motoric control. In other words, it is important to teachers that children stand quietly in line or sit quietly in their seats while they are giving instructions. The high impulsive child is less likely to perform this task, thus becoming a source of irritation to the teacher. Given a broad range of intellectual and social abilities, it would be surprising indeed to find no relationship between intellectual and social abilities. These data suggest that it may be well to formulate our theoretical models of child socialization in terms of cognitive structures. It could be argued that children who can grasp and act upon conceptualizations will be in a better position to understand and accept the demands made by their teachers. It also follows that the more impulsive child, who may find his relationships with teachers more difficult even with mature cognitive structure, is more likely not to have such structures available to him. Thus, this child is placed in a much more difficult situation as suggested by the low ratings they tend to receive from their teacher. We do not mean to imply that all of the variance in teacher attitudes toward children can be accounted for in terms of variation in cognitive structure. Certainly there are variations in the social adequacy of children's behavior even where there is homogeneity with respect to intellectual ability and cognitive style of functioning. Such variations undoubtedly result from important influences shaping the child's social behaviors, such as parent-child and teacher-child relationships. Our data provide only the most minimal cues as to what happens to the less positively perceived children, namely, that they tend to receive a substantial proportion of the teacher's blame statements without necessarily a concomitant increase in praise for more controlled behavior. Manipulation of unapproved behaviors is apparently attempted almost entirely by punishment albeit verbal and not particularly severe.

A final observation. Throughout the arduous business of data analysis, one could not help but feel overwhelmed by the variation among the children on each of the measures and the concomitant gain scores. This feeling of concern about the variation is certainly not unique to our research group, but one can't help wondering why classroom programs continue to have a uniformity of procedures over all children. Perhaps future research efforts should concentrate on identifying the salient dimensions of variability (multivariable statistical techniques are now available) and then concentrate on variations in programming for individual children.

CHAPTER VIII

INTERVENTION PROGRAMS AND THEIR RESULTS

Researchers at several universities studied the effects of preschool experience on intelligence, achievement, and attitude. Others examined the effects of specific types of programs on specific aspects of achievement. The kinds of intervention programs included nursery and/or kindergarten attendance, special language programs, a Bereiter approach, and Montessori methods.

The chapter also includes a discussion of questions to be considered in evaluation of language curricula and intervention programs for disadvantaged preschool children.

Nursery School or Head Start Attendance

Stanford-Binet Results

Beller (Temple University) found clear cut differences on the Binet among three groups of disadvantaged children tested at the end of first grade: (1) children who attended nursery school, (2) children who attended kindergarten but not nursery school, and (3) children who entered first grade without prior experience. He concluded that nursery school intervention is more effective than later intervention and that the particular school in which a child receives his nursery or kindergarten education is important. This latter finding, he suggests, is particularly relevant to "Follow-Through" research. The value of a battery of tests is also pointed up by Beller's work.

Sontag (Teachers College) in lieu of a control group, made a comparison of age-matched groups of Head Start children by finding in the sample a child whose age at post-test matched that of another child at the time of pre-test. Differences between the experimental and the one control group on the Binet were not significant; on the Caldwell, differences between groups were significant on the total scale as well as on Associative Vocabulary, Concept Number, and Concept Sensory. The only area of the Zigler Behavior Inventory on which there were significant differences was jealousy, on which the control group received more favorable ratings.

School Grades

Sontag et al conducted another study at Teachers College for pilot purposes. They compared the first grade records (grades and attendance) of children to compare those who had had preschool experience with those who had not. The only significant difference between the two groups was in attendance which favored the children who had had preschool experience. Sontag suspected that the groups may not have been well matched since the matching was done by school personnel.

Beller, in contrast, found significant differences in school grades. In the second year of his follow-up study the most relevant evidence for the impact of preschool education became available when he obtained school grades for children in his three different groups.

> The timing of educational intervention is very significantly reflected in school grades at the end of the first grade. Children who had any preschool experience, whether it was nursery or kindergarten, achieve significantly higher grades in arithmetic, reading, and writing than children who entered first grade with no prior education. Apparently, it made little difference whether a child had nursery and kindergarten or only kindergarten. Both background experiences clearly affected a child's grades compared with children with no preschool experience.

> Our findings at the end of the first grade are strongly supported by subsequent analysis of grade marks obtained for the same children from the first report card of the second grade.... The impact of early educational intervention is now showing up in a number of important subjects in addition to arithmetic and reading. The children with preschool and kindergarten are superior to those who entered first grade without prior schooling in spelling, social studies, science, speech, and written expression. Preschool experience does not appear to affect performance in such areas as art, health education, work habits, handwriting, and citizenship practices; children with prior school show a trend toward superior grades even in these areas, but the trends fail to reach statistical significance.
>
> This demonstrated prolonged effect of earlier educational intervention on academic achievement in practically all subjects is indeed remarkable and most encouraging.

Delay of Gratification

Berke (Southern University) presented preliminary findings from an ongoing study which was designed "to ascertain whether the culturally disadvantaged child, who appears to adhere to the principle of immediate gratification has learned, as a function of his participation in Head Start, a more future-related temporal perspective as compared with his non-Head Start counterparts."

> The results...reported are trends and should be considered as tentative.... The data are supportive of...the contention that culturally deprived children tend to lack intrinsic sources of motivation and tend to demand immediate gratification....

Special Language Programs

Investigators at several universities reported on language development of preschool children under two general types of programs: nursery school, and school plus specially designed language programs. Beller (Temple University) wrote:

> As we approach the question of whether a nursery program has an appreciable effect on the language functioning of nursery children, we might infer an affirmative answer from an earlier finding.... Nursery children tended to score higher on the Stanford-Binet Test than all other children who did not have nursery, while they failed to perform better on the non-verbal Goodenough Draw-A-Man Test. From this finding, one might have speculated that the nursery program had an appreciable effect on the language development of those children who were involved in the experimental nursery project. However, as we turn to more direct evidence to evaluate this question, we find no support for such an inference.... None of the detailed subtests of the Illinois Test of Psycholinguistic Abilities shows a significantly greater gain in language functioning in our nursery children (experimentals) than in our non-nursery children (controls). In fact, the only significant difference that emerges is a greater gain in the control group on one of the subtests,

> namely, comprehension of speech (Auditory Decoding). However, whereas the nursery program per se had no effect on language development that we could detect in our follow-up study, The experimental language program . . . did have striking and apparently prolonged effects on language functioning in development of our disadvantaged children.

Byrne (University of Kansas) proposed "to test the effects of a compensatory language development program on a group of 13 Negro and white Head Start children, aged three through five years."

> For five months, daily sessions of approximately twenty minutes in length were held with small groups of three to five children. These children, plus a similar group who were not receiving the special language program, were tested prior to and following the program. Although few differences were shown between gains of the experimental and the control groups in total language age scores, significant differences were found on two subtests of the ITPA: the Vocal Encoding and the Auditory-Vocal Automatic.... These subtests, which test grammar skills as well as ability to use adjectives in describing objects, show skills obviously gained in the language program.
>
> Only a small difference was shown between gains made by the two groups on the Peabody Picture Vocabulary Test. This is surprising considering a great deal of emphasis was given to vocabulary in the program....
>
> The children showed wide variance on all the tests given. This indicates the need for an even more individualized program than was administered, to reach the slowest learners as well as those who learn rather quickly....
>
> The effort needed to teach some in the Head Start classroom a series of verbs, for instance, must be doubled or tripled for other children who need a great deal more repetition to learn a lesson. The need to break down the class into homogeneous groups in presenting a language program would, of course, require a great deal of the teacher's time if a special language teacher was not available. The aides could be of enormous assistance in implementing a program of this kind, carrying on activities within the classroom while a certain small group was taken by the teacher for more specialized instruction. It seems vital that this type of teaching be done in the Head Start classroom, if the classes are to remain as heterogeneous as they normally have been.

Crowell et al (University of Hawaii) explored the questions:

> (1) Can the Bereiter approach be adapted to a larger group and scheduled within the framework of a traditionally oriented preschool program? (2) How do gains from pre-test to post-test scores compare for experimental classes (which used the

> modified Bereiter program and a general language-oriented enrichment program) and control groups (which consisted of a traditional nursery school class and an untreated control group)? and (3) What are the measurable effects on cognitive and linguistic abilities of introduction of an intensive language-oriented program to three-year-olds, thus giving them two years of preschool experience instead of one?
>
> Pre-test and post-test scores were obtained for each child for the following instruments: Stanford-Binet Intelligence Scale, Peabody Picture Vocabulary Test, Mecham Verbal Language Development Scale, Illinois Test of Psycholinguistic Abilities, and Frostig Developmental Test of Visual Perception.
>
> Comparison of the results for all these measures show that statistically significant improvement was made by the experimental groups on most measures while the control groups did not show such changes. These differences presumably were a function of the experimental curricula which emphasized language development.

From this study the investigators see the following implications for further research:

> The current status of the project reveals a need for development of a revised curriculum in manual form based on the preliminary work of this past year. In addition to the more formal language materials, some less structured activities that also will strengthen language behavior should be added, thus more definitely specifying activities for a larger portion of the total school day. Reinforcement procedures should be carefully defined. Such a curriculum warrants systematic testing and evaluation in a large enough sample to reduce the variation due to differences among individual teachers and comparison with comparable control classes.
>
> Review of the past year's work has increasingly revealed the importance of the role of parent involvement in preschool operation. Plans are being made to introduce a structured program for parents, which is designed not only to foster the development of positive attitudes toward school and school achievement but also to promote parent understanding of the curriculum in order to increase their support of classroom goals. Preliminary review of the literature has failed to reveal an appropriate instrument for pre- and post-evaluation of the parents' attitudes toward school and information about the preschool curriculum for their children. Plans for developing such a scale are being made.
>
> Television taping of the experimental classrooms in which linguistic training was taking place served a useful function for in-service training in the use of new curricular materials. A useful next step in this procedure would be to prepare a teaching tape of one teacher's presentation of each of the grammar levels of the curriculum and a sample of the less structured activities also

designed to strengthen language development. The tape would parallel the organization of materials presented in the manual.

Hubbard et al (University of Texas) sought to determine language deficiencies of culturally different children and then 'to use this knowledge in a training program to minimize these deficiencies and increase the learning potential of these children.

The investigators developed a fifteen item Oral Language Development Scale of which eight items refer to mechanical aspects:

> Accurate pronunciation, clear enunciation, correct use of verbs, correct use of pronouns, use of expressive vocabulary, appropriate use of complete sentences, uses meaningful intonation, uses adjectives meaningfully. [The other seven items refer to expressiveness]: spontaneous expression, expresses ideas verbally with facility, speaks self-confidently, responds appropriately to questioning, interacts verbally with members of the group, expresses judgments and inferences verbally, and relates facts and ideas logically....
>
> The teachers were instructed to obtain samples of the children's speech in a spontaneous, unrehearsed manner ranging from one to five minutes in length. This was to be done in such a way, wherever possible, that all items on the scale could be evaluated.... Each classroom teacher listened to the tape for her class and rated each child on the Oral Language Development Scale. A second teacher, usually the special reading teacher for that grade, then listened to the same tape and rated each child independently of the first teacher. . . .
>
> From the results of our study, there appears to have been somewhat of a reversal of the positions of the two grades during the course of the school year....In the Fall we found little difference between Head Start and Title I children in grade one, while there were definite differences between the two groups in grade two. In the Spring we find differences...between Head Start and Title I children in the first grade but essentially no differences in the second grade. It is difficult, therefore, to draw any definite conclusions about trends in where the differences lie between Head Start and Title I children. The most clear-cut distinction we can find between the Head Start and Title I groups is that the former is much more homogeneous with regard to oral language ability than the latter. Even this distinction, though, appears to begin to fade out by the end of the second grade.
>
> These observations suggest the possibility of more accurate determination of the development of oral language proficiency of Head Start and Title I children by future follow-up studies. For example, what happens when these children reach the third, or even fourth, fifth and sixth grades? Does the heterogeneity of

> the Title I group fade out even more than it does by the end of the second grade? Are more recent Head Start programs, such as the current one and future ones, more effective in promoting oral language development than the two early ones? Since so little is known in the field of the oral language development of culturally different children, it would be worthwhile to try to find the answers to these questions.

Stern included, as part of the final report from UCLA, a paper, "Evaluating Language Curricula for Preschool Disadvantaged Children," which she had presented at The Biennial Metting of the Society for Research in Child Development, April, 1967. She reported that experimental findings show consistently that "language deficits characterize children from low-income homes, and that the deficits are greatest in those uses of language most closely related to cognitive behavior...." She describes the intervention programs which have developed as "lying along a continuum" from systematically-structured programs emphasizing patterned repetition and drill, conceiving of language as the vehicle for teaching of concepts and the rules for manipulation of concepts, to developmental programs viewing language as only one aspect of the child's growth pattern, and, therefore, placed within a total experience context.

"Between these two positions are [other approaches] . . . . Throughout all of these programs, in some more explicitly than others, there is an awareness that language is the key to unlock the child's ability to learn...."

> Basically, the problem of evaluating any specific program is often confounded by a lack of explicitly stated behavioral objectives. In some cases where the objectives are explicated, there is a lack of correspondence between the stated goals and the instruments used to evaluate the terminal behavior. It is obvious that evaluation instruments must be designed so as to measure the effectiveness of a particular procedure in accomplishing what it sets out as its goals. However, there is the far more fundamental problem of determining the rationale which sets these immediate objectives within the framework of the long-range goals of intervention and innovation in education.
>
> Probably the most prevalent, and most often left implicit, goal of a language remediation program is that of imposing middle-class speech patterns, even if only as a "second language", on children who use dialect speech...

Stern goes on to discuss the role of intervention programs on intelligence tests. She states that"While the correlation between intelligence" and academic success is well established, the meaningfulness of IQ scores for this population when obtained with existing instruments is open to question." Citing Glick (1966), she concludes, however, that "Even if all an intervention program does is to teach children how to 'play the game' and motivate them so that they do become successful competitors in the academic arena, the program has had an obvious and important beneficial effect."

> Unfortunately, it is especially difficult to establish that a particular type of instructional sequence has achieved the objective of preparing a child for continuing success in school tasks. This type of evidence can only be gained from longitudinal studies in which appropriate curricula are presented over several years of schooling. It is patently absurd to imply that a compensatory program has been a failure because initial gains are dissipated when the child is placed in an inadequate primary curriculum. The position of this paper is that any number of approaches to language development are permissible and valid as long as the stated outcomes of the program can be demonstrated in overt and measurable behavior.

Special Tutorial Program Center

Renee Reens (Bank Street College of Education) reported a 12-week program of individual instruction in abstract concepts at the Early Childhood Center which was evaluated by means of pre- and post-Stanford-Binet Tests.

> The instructional group gained a mean of 4.0; [and] slightly higher gains occurred in the control group who had not received special instruction. This suggests that the total E.C.C. program has an accelerating effect on the intellectual development of the children, but that the addition of Individual Instruction, as practiced in Project I, did not increase I.Q. scores....
>
> While individual instruction of abstract concepts to young children may not always certify its worth in terms of quick I.Q. gains, it does seem an enterprise worthy of further exploration. Among its merits and potential uses are the following:
>
> (1) As a tool for teacher training as well as for child learning. It can be of great value in teacher preparation for teaching young disadvantaged students.
>
> (2) A curriculum and methodology for teaching abstract concepts can be developed with intentional feed-back to the classroom.
>
> (3) "Individual Instruction" provides a close-up on various forms of child approach to and child resistance against cognitive change. Further, it creates an urgency on the teacher's part to understand child behavior and to cope with it in terms of curriculum and method changes.
>
> (4) "Individual Instruction" can serve research interests as well, particularly by providing a unit for observing the developing process of abstract thinking.

Montessori versus Bereiter Method of Teaching Arithmetic

As part of their research at Syracuse University the staff also conducted an exploratory arithmetic project in which they introduced two special programs, a Montessori Program and a Bereiter-type program.

Two Montessori groups of five each were established by randomly selecting the 10 children from among the 33 [five-year-olds] enrolled in the [summer] program. The Bereiter group consisted of five randomly selected children from the sample. A total of eight randomly selected children served as control subjects.

Since the Bereiter group only worked on arithmetic, comparisons among the groups were based only on arithmetic achievement.... All groups were administered an arithmetic achievement test developed for this specific purpose. A pre-test post-test design was used.

The children in the three experimental groups, two Montessori and one Bereiter, went to their particular rooms for one-half hour each day. The control group remained in their own classrooms. Montessori materials were available to the children and [the] special emphasis was arithmetical operations or concepts. The Bereiter group followed the program used by Bereiter.

Although statistical analysis are not completed ... data indicate that the largest gain occurred in the control group and is statistically significant....The average gain for the pooled Montessori groups is not statistically significant.... nor is the gain for the Bereiter group statistically significant....

Perhaps the most significant... data [from this exploratory project] is the substantial variation in performance on the test. Examination of pre-test scores for the entire group shows a range of 0-23 and a post-test range of 4-29. These data suggest that some preschool children are capable of handling some fairly sophisticated arithmetical concepts and operations.

SECTION II

RESEARCH ON PARENTS AND FAMILIES

CHAPTER IX

RESEARCH ON PARENTS AND FAMILIES

Researchers at seven universities worked on studies of Head Start children's parents and families: their characteristics, as compared with those of other groups of parents; the impact of familial characteristics, behaviors, attitudes and values on children; the effect of Head Start on the behavior and attitudes of the parents; and the effects of some of the parents' Head Start experience on their children. New questionnaires and scales were developed as a necessary and major part of these projects. Much of the research on parents is still in progress; the completed studies suggest areas for further study.

Development of an Instrument for Obtaining Data on Lower-Class Parents and Antecedents for Cognitive Development

The research staff at Michigan State University and the Merrill-Palmer Institute developed an extensive composite parent interview, with a questionnaire of 122 items. The establishing of reliabilities, coding judgments, and working these out for the computer is being done. The purpose of the interview was to provide: "(1) a source of data to identify certain classes of antecedents for learning and cognitive growth; and (2) descriptive information about lower-class family values, organization, and structure."

> Approximately 450 parents, both mothers and fathers, of middle-class and lower-class families whose children participated in studies in learning and cognitive development were interviewed in their home. ...

The questionnaire was planned to obtain data for pursuing several lines of research. Different sets of the items are expected to provide a good deal of information about the parents. The next major step will be to identify relationships between parent variables and child variables. Several research topics are being explored through the interview items.

Safilios-Rothschild will make a study of the dynamics of the husband-wife relationship which will involve:

> [A] comparison of husbands' and wives' perception of the familial power structure;... a methodological paper [concerning] whether or not the wives' answers alone are sufficient in giving an accurate and reliable description of dynamic family variables;... patterns of power and influence in the American family. .. [or] the influence techniques spouses use in trying to "get their way";... a comparison of patterns of power and influence in the urban American and Greek family [where similar data will be collected];... the determinants of marital satisfaction;... and parental and filial role-definitions.

Sigel and Feher are studying the questionnaire data to determine parent-child interactions, attitudes and locus of control. They report:

> Effort is being directed toward identification of the familial antecedents of categorizing styles of both lower-and middle-class children, thereby shedding light on "causal" relationships and perhaps enlightening us vis-a-vis middle-class conditions.... A trait description of the child was obtained from the parent, providing a picture of the child from the parent's point of view.... [This] trait description was supplemented by the parent's reaction to various deviant traits; [to] help define the range and type of traits the parent finds acceptable....[Other items] are intended to yield information which should be related to the child's approach to objects and his grouping of them... [and to parental intervention techniques]....The interest the parent has in the child's activities and the degree to which the parent is willing and able to disengage from his own for the child's sake [are also assessed]. . . . A number of other questions revolving around the parents . . . are more revealing of the parent qua parent, e.g., his feeling of competence as an agent

> of influence . . . . Related to this is a set of items dealing with locus of control . . . . These items assess the degree to which the parent holds the child, in contrast to the teacher, responsible for the success or failure of the child's activities in the school.

Rodman and Voydanoff are developing a study of family aspirations and expectations from the interview data. They expect to document the nature of parental aspirations and expectations for their children (educational, occupational and income) and to explore the relationship between family variables (mutual responsibility of parents and children, attitude toward mother working, decision-making and resolution of conflict, degree of marital satisfaction) and the parental expectations.

In another study to be conducted on the basis of the interview data Watson plans:

> to obtain descriptive data concerning ways in which families differ in the nature and timing of the physical environments they arrange for their young during the initial two years of child rearing.... Data analysis will focus on toy-environment differences as these relate to the variables of social class, parent education, and sex of child. Additional analyses of interest will be possible such as relating the toy-environment data to parental ratings on achievement aspiration and the child's performance scores in various cognitive-perceptual tasks in which these children have participated.

Utilization of Parents as Interviewers

Suzanne Clay (Boston University) described the development of a parent interviewing project.

> A major project of the 1966-1967 evaluation of Head Start children in New England and Bolivar County, Mississippi, was the utilization of non-professional community interviewers in the collection of information about the attitudes and reactions of parents during an interview. Our decision to recruit and train community people resulted from requests by several New England Head Start Directors that the Boston University Head Start Evaluation and Research Center make a commitment to involve parents of Head Start children to the fullest extent in meaningful and productive roles within the evaluation and research design. A secondary factor supporting the suggestion was our interest in demonstrating that a team of parents who were knowledgeable about the various communities in which the Head Start evaluation samples were located and who had training in interviewing skills and on-the-job supervision from E&R Center Staff would be able to elicit cooperation and reliable responses from parents of Head Start children. . . .
>
> Among the many questions posed during the planning were the following: What impact will the activities of teams of community interviewers have upon on-going Head Start programs? Will the parents resent having neighbors in some instances, asking probing questions about their children's behavior at home? Will the parents, many of whom are receiving welfare assistance, be confused about the Head Start evaluation project to the extent that they will identify the community interviewer as an employee of a welfare agency? Will there be avenues of communication built into the project so that professional Head Start social service workers can share in planning methods to be used? What financial arrangements will be made to make this a reasonable task for the community interviewer? Will the position be advertised widely so that the better applicants may be chosen?

Twenty-four mothers, 12 in New England and 12 in Mississippi were trained to collect data on about 191 Head Start families in the two areas. A summary of the Mississippi project pointed up the impact of Head Start and some of the problems in this area.

> In this area where Head Start programs have taken a "first step" in getting parents involved in the education of their children, the Head Start program is much more than an educational venture. For a great majority of families in the county it has meant employment, clothes, food and shelter. However, given the existing conditions of the homes visited, it was obvious that there must be a massive attack in the War on Poverty aimed at homes in Mississippi where Head Start children live. Until

> services providing for physical, nutritional, and social welfare needs are injected into this area, it is doubtful that many parents will be able to address their energies or interests to maintaining a home environment that will augment, or at least, not wreck whatever gains the Head Start child has made.

For the future Clay recommended the following:

> Closer supervision and more intensive training could yield better outcomes in involving non-professionals in meaningful, dignified and worthwhile ways within the Head Start evaluation and research activities.
>
> Several of the questions raised by Head Start Directors and their staffs in New England and Mississippi touch upon providing for the wisest utilization of non-professionals within educational research activities, creating programs within local universities which offer college credits for non-professionals in jobs traditionally held to be the exclusive province of social workers, teachers and researchers. The exploration of many of these issues lies before our E&R Center within the coming year.

Demographic Studies of Hawaiian Children

Furuno (University of Hawaii) designed a study to investigate possible differences in characteristics of families eligible for Head Start classes and the factors that influence the enrollment of their children in these classes. Of the 213 families interviewed, 107 were Head Start families and 106 were non-Head Start families. Results showed no significant differences between the two groups in economic level, occupation or education, presence or absence of fathers (two-thirds of both groups had both mother and father present) or medical supervision, although a trend showed a larger percentage of fathers of Head Start children had graduated from high school (51% versus 41%) and that more Head Start families (42% versus 34%) had private physician care.

> Significant differences were found, however, with respect to a number of other characteristics: 1) having a sibling in Head Start the previous year, 2) both parent and children ownership of library cards, 3) having been informed directly about Head Start classes through visits by professional workers, and 4) having been informed about Head Start by an Office of Economic Opportunity representative [versus social worker, public health nurse or newspaper].
>
> [Of the 106 families who did not have children in Head Start 61 had their children on waiting lists.] Of the other 45, who were asked to state their reasons for their child's not attending

> Head Start, 46 per cent indicated that they did not wish to send their child, 38 per cent indicated that they did not know anything about the classes, 7 per cent forgot to register, and 9 per cent reported that their child was enrolled but had to drop out due to illness, lack of clothes, refusal of child to attend, or moving out of district. . . .
>
> For purposes of interest, a separate analysis was made comparing Department of Social Services families with non-DSS families. Results indicated that more DSS fathers were unemployed; education of parents of non-DSS families were at a higher level; more private physicians provided services to non-DSS families and medical supervision ratings of homes were better for the latter. Further, while there was no difference in comparison of Head Start and non-Head Start groups in regard to absence or presence of fathers, in comparison of DSS with non-DSS families, fathers were predominantly absent among DSS families.

In discussing the implications of this study the investigator pointed out the need for improved communication between the providers of services and the recipients (38% of the families not in Head Start gave as their reason they did not know anything about these classes). "The results of this study suggest that the soft-sell slogan of 'We try harder' must continue to be applied."

> That the majority of the poor are interested in education is not only demonstrated in this study, but also cited in much of the literature.... That there is still a small group of the poor that appear disinterested and are not reached is also true. In this study, the families under public welfare as a group tended to fall into this category. Results suggest that concentrated efforts must be made to reach this group if we are to break "the generational cycle of poverty and cultural deprivation."

In a second study at the University of Hawaii, Allen compared data obtained from 119 families whose children were in Head Start with that from 114 families of private preschool children.

> The areas designated for investigation were: (1) the degree of primary relation between the mother and father of the preschool children, involving studying personal acceptance, personal communication, and personal need satisfaction...; (2) goal aspiration; (3) marital role attitudes; (4) family activities (tasks); and (5) the degree of participation in social organizations. . . New measures were developed for each of the three elements designated as part of primary group relations.
> The scale for studying goal aspirations of the sample was developed by methods previously used for developing primary group relation scales.

The marital role scale, family activities, and measures for investigating degree of participation were adapted from other scales and work.

A summary profile of the demographic characteristics of the two groups of Hawaiian mothers and preliminary analyses of the data highlighted some significant differences. There was less primary relation between husbands and wives of the Head Start group. The private preschool parents were higher on personal acceptance, personal communications and personal need satisfaction.

The private preschool mothers and fathers seemed to have greater satisfaction than Head Start parents, particularly concerning father's approval of the mother's doing something outside the home, the feeling that the father provided enough money to run the household, the father's giving enough attention to the mother, and the opinion that the father would not physically hurt the mother or the children.

On goal aspirations the two groups showed no significant difference, though there was a significant difference between the groups with respect to adult education, owning their home, children completing high school, expecting children to go to college, and expecting the children to have a better job than the father.

Preliminary analysis of the data concerning participation in social organizations or group activities indicated that the Head Start mothers were more active and Head Start fathers less active than the private preschool parents.

> In general, it appears that the Head Start mothers are highly active in parent-teacher associations, community action programs, parent groups, mothers' groups, and church groups. The private preschool mothers seem to be active in parent-teacher associations, recreation groups, and church groups. There was a greater number of "no" responses by the private preschool mothers. The private-preschool mothers added many more activities to the structured list, indicating greater diversification and emphasizing interest in different types of activity.

Analysis also showed that while in general, both groups of mothers currently felt "very pleased or pleased" with their respective preschool programs the Head Start mothers were by far the most active in participation in the preschool program. "The requirement in the Head Start program for parental participation, especially by the mothers, seems to be working successfully"in Hawaii.

In discussing the preliminary results the investigator made the following comments concerning the Headstart program:

> The preschool program is considered by the mothers to be needed, effective, and beneficial to their children.... Knowledge of [the] demographic characteristics [of Head Start Parents] contributes to understanding of the values, needs, norms, motivation, and social control essential for working with this group in an education program.... Understanding of the high aspirations and the specific goals of this group [and the possibility of frustration] can help provide direction for developing various programs, including Head Start. The Head Start mothers wanted an equalitarian relation with the father. In contradiction, however, the image of the father was that he should come "first" or be the "boss." Knowledge about the relation between the father and mother is essential in knowing how to support and motivate the child through an educational program. This study points to the necessity for investigating this relation further, especially as it relates to the child's achievement.
>
> The Head Start mothers were highly active in social organizations, particularly those related to Head Start. This program has provided an opportunity for the mothers to participate in community activities. These data contradict the notion that this segment of society is not interested in taking community responsibility.

In conclusion the investigator listed a number of questions and areas which warrant further exploration, and which would provide additional essential knowledge for relating to and working with the Head Start segment of our society. These include study of the roles and impact of teacher and social agencies on parents, the possibility of getting fathers more involved, the impact of the home's physical environment upon the child's potential achievement, and the exploration of other avenues for helping mothers to achieve their goals.

Family Influences and Attitudes on Deprived Children

Bell (Temple University) studied family influences on the education of Negro lower-class children. His study was specifically concerned with "some ways in which mothers' values and behavior may influence the formal educational experiences of their children in a particular Head Start program."

A 38-item questionnaire was developed and a sample of 200 Negro mothers of children enrolled in a full-year Head Start program were interviewed. Seventy-five percent of these mothers were neither employed full or part-time outside of the home.

The results indicated:

> It was the mothers' overwhelming feeling that the Head Start school experience was a positive and significant influence on their children. . . . "He was getting along better with other children;". . . "he was showing more interest in more things and activities;" "he was more self responsible;". . . "had better manners and was more cooperative;" and "expressed himself better.. . ." In general the common theme suggested by the mothers was that their child was being effectively socialized by his school experience.

The mothers' response to what they liked best about their child being in the Head Start program included: his self-improvement; his chance to meet other children; away from me for a few hours; becoming more independent. The mothers' response to: "What does your child like most about school?"included: drawing and coloring; stories; toys and music; playing with other children; the teacher.

> A second part of our study was concerned with some of the patterns of child rearing that were followed in the home by the mother. . . . The mothers were asked what they considered to be their greatest problem in bringing up their children. To this question 40 percent mentioned problems of discipline and control, 28 percent said they did not have sufficient money to meet the basic needs of child care and rearing, and 12 percent felt the problem was keeping their children away from "bad influences" in the neighborhood.

To the question what they liked the most about being a mother: two-thirds replied "raising their child and watching him grow" and another 26 percent simply said "loving them." The response to what they liked least about being a mother included: "limitations of money, personal sacrifices or no husband to help" (23%).

> While the women mentioned a number of problems in being a mother, none indicated any rejection of motherhood itself. It is clear in this study (and

> in others by the writer) that the role of mother is of great importance to lower-class Negro women.

The responses to another set of questions indicated that the mothers perceived themselves as the greatest influence on their children, with the teacher, and then the father next in importance. Other items showed that the child got some help with learning at home (being read to or help with coloring or drawing) but there was little help from any other sources. The educational aspirations of 73% of the parents for their children included a college education but only 23% expected a college education for their children.

A summary of positive and negative role models the parents selected for their children revealed that the civil rights movement had been important in providing both positive and negative male role models that Negro mothers hold for their sons. "For the female role models the values focus on talent and achievement in the entertainment field. . . . Among the female role models, 77 percent of the positive ones were Negro but only 18 percent of the negative ones." It was also noted that when the respondents were asked about models they have actually known, the positive values of economically responsible male roles and maternally responsible female roles showed their importance.

Another research project at Temple University on mother-child interaction is still in progress. Beller has collected data consisting of measures of nurturance deprivation and of interest vs. disinterest manifested by parents of 200 children. On the basis of these data, the children were classified into a more and less deprived group.

> Some impressionistic findings which have to await confirmation by statistical analysis [show] that children coming from homes with greater deprivation in the area of nurturance had on the average lower IQ's, i.e., 11 points, than children coming from homes with less nurturance deprivation. In contrast to our expectation, only the children from the more deprived homes performed better on problem solving tasks with increasing amounts of attention withdrawal. Attention withdrawal had no such effect on children coming from less deprived homes. Yet, the children coming from less deprived homes manifested greater ability to learn regardless of attention withdrawal.

Studies of Maternal Influences on Cognitive Development of Lower Class Preschool Children

Hess et al (University of Chicago) explored the effects of maternal influences upon cognitive development of urban preschool children in one study, and maternal antecedents of intellectual achievement behaviors in lower-class preschool children in a second study. The first project was designed to follow up a group of 163 mothers and their four-year-old children who were subjects in a study of cognitive environments of urban preschool children.

> The follow-up study has as objectives: 1) the expansion of the investigation of cognitive input features of the home by the development of techniques for extending the study of mother-child interaction from previous laboratory studies to naturalistic observation in the home and/or school; 2) the prediction of the child's cognitive development and school achievement during the first three years of school, using data from the preschool years; and 3) the longitudinal analysis of the growth of cognitive abilities over these years....
>
> The prediction aspects of the study employ a range of cognitive measures--Stanford-Binet I.Q.; several Piaget-type tasks assessing the child's capacity to distinguish external reality from subjective appearance under conditions of varying perceptual distortion ...; the Sigel Sorting Task to assess cognitive style; several measures of "impulsivity" ...; the Lee-Clark Reading Readiness Test ...; and an experimental visual measure of preference for stimulus complexity developed in the initial study, as well as orientation toward school as expressed in teacher's grades and other measures of ability to cope with the social and authority relationships presented at school....
>
> Additional data were obtained from the mothers, including present attitudes about her child's school experiences and measures of I.Q., reflectiveness, flexibility of thought, and motivational variables thought to be particularly relevant to those maternal behaviors assessed earlier....
>
> In addition, each mother-child pair was observed through a one-way screen for 15 minutes in a controlled free play situation to add to our previous laboratory measures of mother-child interaction (e.g., amount of maternal control, pressures for obedience, orientation to the task, specificity of information given) and to provide a measure of the child's manipulatory curiosity, initiatory behavior, and complexity of play. An overhead mike recorded the

mother's and child's speech and the observer spoke into another synchronized tape recorder giving a running account of the mother's and child's actions . . . .

Preliminary analyses of the data indicate that some variables do not discriminate at all by social class while others show extreme and progressive differences from the middle through the ADC [Aid to Dependent Children] groups . . . . Among the mother measures, average reaction time and number of errors on the Kagan, the anxiety score of the brief anxiety and depression scale, some of the Edwards scales, and the James-Phares Locus of Control measure all show a clear progression by social class in the mean levels. This is also true of the depression score from the brief anxiety and depression scale . . . . The maternal I.Q. data are consistent with previous research findings with the middle-class mothers slightly higher in verbal I.Q. and the lower-class mothers slightly higher in performance I.Q. . . . . The child data are less clear as there are few significant correlations among the various tasks . . . .

Although exhaustive analysis of relationships between home environment variables obtained when the child was four and child data at age six had not yet begun, preliminary findings with the reading readiness scores suggest that the pattern will be similar to our previous findings with the child's preschool performance. It appears that our selected maternal measures will prove to be useful predictors of reading readiness and other follow-up cognitive measures of the children.

Shipman et al (University of Chicago) attempted to replicate findings of a previous study of urban Negro mothers and their four-year-olds and the socialization of children into the role of pupil. The present study used for its population similar and diverse low-income "urban and rural Negro and white families, plus an additional group of Seminole Indian mothers from an urban and rural reservation, all of whom were included in the national evaluation."

In an earlier study of urban Negro mothers and their four-year-olds, the investigators found that the tendency for mothers to use imperative-normative regulatory techniques was associated with the child's low performance in several areas.

> First, there was a significant negative correlation between imperative responses on the First Day protocols and Stanford-Binet I.Q.s. Also, mothers with high imperative scores had children who gave nonverbal responses on the Sigel Sorting Task and were unable or unwilling to offer verbal rationales for their sorts in the interaction sessions. Moreover, we found that even within the more restricted range of responses given by the low-income groups, the mother's feeling of powerlessness in dealing with the school was a significant predictor of her child's I.Q. and his behavior in the testing situation.

In the present study the following predictions were made concerning the low-income mother's response:

> 1. On the First Day Task there will be a predominant use of status-oriented messages and imperative, rather than instructive statements. Obedience rather than learning will be stressed.
> 2. Distance between the school and home will be reflected in feelings of powerlessness in dealing with school personnel.
> 3. Despite the social changes which have occurred over the past few years, there will be considerable discrepancy between the mothers' aspirations and expectations concerning how far their children will go in school.
>
> In addition, we expected sufficient variation within the sample on these measures to be able to make the following predictions.
>
> 4. There will be significant negative correlations between the percentage of imperative and status-oriented messages with the child's pre-Binet I.Q.
> 5. Both level of aspiration and expectation for her child's educational achievement will be positively associated with pre-Binet I.Q.
> 6. The mother's non-participation in groups, reflecting her isolation and reduced sources of indirect social stimulation for her child, will be positively associated with lower pre-Binet I.Q.s.

7. Younger age expectancies for the Winterbottom items will be positively associated with pre-Binet I.Q.s.

8. These maternal behaviors will be significantly related to the child's post-Binet I.Q. and degree of change in intelligence test performance. However, since these scores also reflect differences in the Head Start experiences of these youngsters, the correlations will be expected to be lower.

Interviews were collected in the summer, and coding did not begin until the fall. All data have now been scored, checked, and put on IBM cards, but analyses of the data have just begun. It will soon be possible to determine the extent of confirmation of the above hypotheses in addition to analyzing similarities and differences in sub-sample groups.

> Preliminary results indicate that on the First Day Task low-income mothers from various ethnic groups tend to stress obedience rather than learning in school, and that they tend to present their children with a minimum of rationale for their expected behavior. Also, significant relationships are obtained between both the mother's level of aspiration and expectation and her child's pre- and post-Binet I.Q.s. Urban white and Negro mothers show higher mean levels of aspiration and expectation concerning how far their children will go in school. On the Winterbottom items higher mean age expectancies for the various achievement behaviors tend to be associated with lower Binet I.Q.s, but usually not to a statistically significant degree. There is considerable variation both between and within groups for these age expectancies.
>
> These data are congruent with our argument that social class and cultural effects upon cognitive development of children can best be understood in terms of the specifics of interaction transactions between the mother and her young child, that the nature of these exchanges is influenced by the family's position in the social structure of the community and the availability of alternatives open for consideration, that maternal behavior induces complementary learning or information-processing strategies in the child and that the child's early orientation to authority and cognitive activity facilitates or retards his ability to adopt the role of pupil when he encounters formal learning situations in the public schools.

The purpose of another research project at the University of Chicago (Hess et al) was "to determine part of the process by which young lower-class Negro children's actual achievements in the middle-class school setting are influenced by behaviors and attitudes of their mothers... ."

> Maternal behaviors assessed in the study pertained to the following seven variables: (1) value for school achievement, (2) warmth towards the child, (3) social interaction of the mother, (4) concepts used by the mother, (5) individuation of the child's personality, (6) cognitive controls used with the child, and (7) cooperation with the interviewer... .
>
> The dependent variable in this study was the level of intellectual achievement attained by these preschool children. Evaluation of this was made from standard achievement situations, including several tests and ratings by school personnel.

Tests used were the Stanford-Binet, the Caldwell-Soule, the Metropolitan Readiness Tests; teachers and observers made achievement ratings which were summary scores of items derived from analyses of Zigler's Behavior Inventory: Achievement Orientation, Verbal-Social Participation, and Independence. Psychometricians used the Binet face sheet rating scales to rate the children on Achievement Orientation and Confidence in Ability. At the end of the summer program teachers and observers predicted the children's future grade point average as an additional index of achievement. From findings it was concluded that the measures utilized in the present study were viable indices of these children's intellectual achievement behaviors.

From results on the sample of 45 boys and 45 girls (and their mothers) the investigators concluded:

> Maternal behaviors have been found to have a significant influence upon the achievements of lower class Negro preschool children. Specifically, maternal individuation, a concept developed for this research to describe the more active, analytical aspects of these mothers' behaviors, was associated with measures of these children's actual school achievements. The influence is reflected in different aspects of the children's achievement efforts, including (a) their initial cognitive abilities upon entrance into the school setting, (b) their behavior readiness for school, (c) their achievement efforts as seen by relevant school personnel, and (d) their continued level of performance upon entering kindergarten following a preschool Head Start program. There is some indication that the two important dimensions of maternal behaviors which contribute most to these children's achievements include: (1) open communication between mother and child, and (2) de-

gree of social isolation of the mother. The extent to which the mother actively establishes this communication with her child, in particular, and the degree to which she utilizes even the minimal community resources available to her own experiences both act to determine the level of her child's achievements.... The findings indicate that those behaviors which *are* relevant to these children's achievements parallel those found in middle class communities . . . .

The findings are not consistent with those studies which emphasize the differential influence of maternal behaviors upon children's achievements depending upon the sex of the child. Girls in the present study, however, tended to perform more successfully in standard achievement test situations than boys, and mothers of girls at times demonstrated more of those behaviors found associated with higher levels of achievement, than mothers of boys. Generally though, these findings suggest that *at this age* maternal behaviors associated with higher levels of achievement in lower class Negro children do not significantly differ for girls or boys.

Another finding inconsistent with previous reports... is that the relation between father absence, number of children, age, and educational level of the children's achievements is insignificant. No association between any of these demographic variables and the present measures of these children's achievements was demonstrated in the study... [with the] exception of a .44 ($p < .01$) correlation between mothers' value for school achievement by their children and their own attained educational level. . . . This finding suggests that within the lower-class community more subtle factors operate to depress these children's level of academic achievement than simply the presence or absence of the father in the home, whether or not the mother works, or how many children she currently has in the household. In a subsidiary study, for example,... the finding indicated that mothers who tend to project hostility onto the school are likely to be more supportive toward their preschool child. This material is presented in support of the position that further research to determine the association *between different maternal behaviors within this community* is crucial.

Studies of Effects of Parent Participation in Head Start on Parents and on Children

Research at the University of California, Los Angeles,included two studies of the effect of parent participation in Head Start on self-attitudes and on certain aspects of parent behavior. A third experiment was a pilot study to test the value of instructing parents in home teaching.

Kitano focused on the development of an instrument to measure pre-post changes in parental attitudes especially in the area of alienation. A 216-item scale, consisting of 198 items selected from ten existing scales and 18 new items constructed to measure child-rearing attitudes in general as well as attitudes toward the effects of the Head Start program, was administered to 56 Head Start parents, 97 graduate students in the Department of Social Welfare, and 19 Head Start personnel.

Responses were scored and factor analyses made which yielded ten distinct primary factor loadings: (1) Disappointment in human nature and in the nature of society, (2) Disillusionment -- valuelessness and hopelessness, (3) Acceptance of self and others, (4) Child rearing patterns, (5) Aspirations for child and view of self, (6) Relation of self to others, (7) Role of self in community, (8) Acceptance of others, (9) Powerlessness, close-mindedness, aloneness, and (10) Social estrangement.

After further analyses have been completed, "a variable measure of alienation should be available for use as a pre- and post-test measure to evaluate changes in feelings of alienation which can be effected through Head Start intervention." It is hoped that the use of the scale will be helpful in providing insight into what "types of changes can be expected when parents are given tangible evidence that they are not completely powerless and that there are some areas in which they can make real contributions to the future prospects of their children."

Kitano's second study was part of a larger in-depth analysis of one Head Start Center. At the beginning and end of the year, mothers and participating professionals filled out a questionnaire. As a measure of parent change in utilization of community resources, attendance and participation records of parents at various functions were kept by the classroom teachers, and records of professionals and consultants, including referrals and contacts with other community agencies, were kept.

The following results pertaining to the parents were reported:

> Among the parents, the degree of involvement, participation, and perceptions of the program showed wide variations. There seemed to be a bimodal distribution, with one group responding extremely favorably, participating enthusiastically, reporting on the helpfulness of the program to themselves and to their children, while the response of a second group was characterized by a degree of apathy, spasmodic attendance, and a low degree of overall involvement. These results may reflect the fact that only a little over half of the questionnaires were returned, introducing an important population bias. . . .

> One important outcome of the program at this Child Development Center was the creation of a strong rapport and neighborhood feeling among the parents who participated. The need to obtain full parent involvement is an oft-noted concern of all professionals working in the Head Start program. The present study demonstrated that conscious effort to clarify professional roles is of value not only to the parents but also to the professional workers themselves.

For the pilot experiment to test the potentiality of home teaching,

> eight parent-child pairs,... are being taught a technique for expanding the child's use of language. Through specially-prepared picture books, consisting of a sequence of paired pictures, two independent but parallel stories are presented.... The treatment for the test experiment consists of having the Head Start classroom teacher present the books, and instructions on how to use them at home, to groups of three or four parents in the school setting. The parents come to the school one day a week for four weeks and are given a different story book each time.
>
> Criterion tests, given as both pre-and-post measures, will consist of the Parent Interview, to measure changes in parents, and a parallel-production test to measure changes in children's ability to produce well-formed sentences. If the results. . . . show positive effects on either the parents or the children, a longer training program will be given, with a new Head Start population entering in the Winter semester. At this time, a treatment which will involve a program for teaching each parent directly will be compared with the one in which the Head Start teacher also teaches the parents of the children.

Experiment to Influence Parental Attitudes Toward their Head Start Children

Influencing attitudes of parents and teacher through rewarding children was the subject for Mandel's dissertation at the University of Texas at Austin. His summary of the project follows:

> The primary purpose of this study was to test the hypothesis that socially disadvantaged children can effect positive attitude change in both their mothers and their teachers when they receive a material reward while in school. The effects of material reward on academic achievement of the children themselves was also evaluated. Sixty-nine mother-child dyads, 48 of whom

(3)

were Mexican-Americans and 21 of whom were Negroes, and three Anglo-American teachers participated in the study. Mothers and teachers rated their children's behavior on the Head Start Behavior Inventory at the beginning of the school program, and the mothers also made estimates of how well their children could perform on a set of tasks adapted from Caldwell's Preschool Inventory. The children were then tested on the set of tasks and on the Peabody Picture Vocabulary Test. For the next five weeks, on two days per week, approximately half of the children brought a bag of fruit and a toy home with a note from the teacher stating that they had earned the items for doing well in school that day. At the end of the five week period, mothers and teachers again rated the children's general behavior, and the mothers again estimated how well they thought their children could perform another set of tasks. The children were then tested on the post-set of tasks and on a parallel form of the achievement measure . . . . An overall significant difference between mothers' behavior ratings of children who were rewarded versus mothers' ratings of children who were not rewarded was not found. Teachers rated children whom they rewarded significantly better socially adjusted than children whom they did not reward. Children who were rewarded did not have significantly higher achievement scores than children who were not rewarded. However, within-ethnic analysis revealed that while reward had no significant effect on Negro children's achievement scores, rewarded Mexican-American children scored significantly higher on the achievement post-test than nonrewarded Mexican-American children. . . . Mexican-American mothers' estimates of how well their children could perform remained significantly closer to the children's actual change in performance than Negro mothers' estimates. On the basis of these findings some proposals for differential treatment of ethnic groups, in terms of working within their respective value orientations toward education, were suggested. It was emphasized that caution be exercised when making assumptions concerning homogeneity within socio-economic group classifications.

SECTION III

RESEARCH ON CENTERS

CHAPTER X

HEAD START CENTERS: TEACHERS, CLASSROOMS, AND SOCIAL ORGANIZATION

Much of the research on Head Start centers involved the development of instruments to measure curricular input, teaching style, interaction of changes in children and teaching approach, as well as the study of inner-city versus suburban Head Start center environment. Three studies were made of approaches to improve teaching. A brief description of ongoing research to investigate the social organization of Head Start centers concludes the chapter.

Development of Instruments

Observation for Substantive Curriculum Input (OSCI)

Due to the "critical need" for instruments with which to obtain information about the curricular content of Head Start centers, the directors of the Evaluation and Research Centers set up a commitee to develop instruments for classroom observation. Frank Garfunkel (Boston University) and Carolyn Stern (University of California, Los Angeles), as co-chairmen of this committee, worked on two different aspects of the problem: Garfunkel on observation of teacher behavior under "structured task conditions" and Stern, on measures of "substantive curricular input."

Stern included in the University of California annual report the "Revised Manual: Observation of Substantive Curriculum Input (OSCI)." OSCI was designed

> as a comprehensive record of ongoing classroom activity. The observations provide data from which it should be possible to reconstruct a picture of curricular input in a particular classroom. These data are recorded within the format of an alphanumeric code in four segments: context of activity, content focus, nature of child's involvement, and locus of control.

The 21-page manual specifies the schedule of observations, procedures of observation, rules for observer behavior in the classroom, activities during which observations are not recorded, and rules for describing groups. A description of codes is provided, with examples.

Observational Strategies for obtaining Data on Children and Teachers in Head Start (OSOD)

With the cooperation of Stern and others Garfunkel developed a major instrument, "Observational Strategies for Obtaining Data on Children and Teachers in Head Start" (OSOD), to obtain relevant data about the curriculum, classroom, teacher and peer effects on individual Head Start children. This instrument is comprised of several instruments since "no single strategy will satisfy the diversity of situations, teachers, methods, classroom organizations, adult interactions and activities to be found in Head Start and other levels and kinds of classrooms." A dual strategy to study curriculum and individual children simultaneously across time was developed. The power of the instrument lies in the ways that two, three and four scales can be interrelated in order to get at more complex effects.

> The most critical scales (process focus and control) are crucial to both strategies... [and] will, of course, be controlled by other scales (participation which will be mediated by child behaviour and teacher style.) The strategy does not preclude the use of anecdotal reports. . . .

> The categories used for the *curriculum protocol* will provide a basis for connecting classroom procedures with individual child behaviours. *Control*, *participation* and *teacher style* will provide data on how curriculum is presented and how it is received, thus allowing for inferences about not only *what* is being presented to the child, but *how* it is expressed and *how* it is received.
>
> Observational recordings can be used for obtaining individual child measures as well as class measures. When a prediction about change is made for a given class, it can be mediated by the data obtained on individuals in that class. Thus, we will not have to rely on global predictions exclusively. The hypothesis that a child who has been exposed to a considerable amount of a particular kind of cognitive content will change cognitively will be mediated (different hypotheses for different children or clusters of children) by variables of the *behaviour protocols.*
>
> *Time variables* provide quantitative data on an aspect of *participation*, and also an aspect of curriculum. For any given curriculum, the time variables will provide verification or rejection of the observed goals, in terms of particular children.
>
> The *teacher protocol* (C3) consists of seven scales, the data on which will be analyzed separately, in order to isolate two or three factors. Resulting factor scores on teachers will be used to further mediate the evaluation of attention as it applies to children.... The aim of these analyses is to explore the question: what kind of teacher (or teaching) will get what kind of attention? The "kind of teacher" (or "teaching") is gotten at by the *teacher protocol* and also by (*control*, *teacher style*) and, more generally, from the *curriculum protocol*. "Kind of attention" is explored in *participation*, behaviour and the *time variables*.

Study of Teaching Style

Garfunkel (Boston University) worked on several other projects concerned with evaluation and description of teaching. One of these projects was a study of teaching style, the importance of which he described as follows:

> Of the several components of teaching situations it would appear that teaching style is, at the same time, the most difficult to study and the most critical. Although there are practical limitations, content exposure (curriculum) and responsiveness (participation) can be more or less directly measured by time sampling procedures. The amount of time individual children are talking, painting, dancing, and answering questions can be accurately, even if tediously recorded. Similarly, sustained activities can be classified and quantified. But the way or style in which this occurs is critical to consequent values and dispositions of children. How much children have learned from a school experience is not enough. It is critical to find out and describe how they have

> learned and how they will approach new learning situations. Even though recall and recognition might be useful indices of transfer, they are, at best, indirect and often misleading. The combination of convergent accumulations of facts with exposures to determinable teaching styles should provide a more powerful estimation of how children, with equally determinable cognitive styles, will be able to deal with future teaching situations, again with more or less determinable styles.

In this project 30 tasks were developed and presented to Head Start teachers in order to facilitate descriptions of variation in teaching style. Twenty-minute samples of teaching, according to task instructions, were filmed so that inter-and intra-teaching comparisons could be carefully analyzed by diverse observers, thus permitting concomitant study of observer(ing) variation. The use of tasks provides sufficient standardization to permit observers to make accurate predictions regarding subsequent task teaching behaviors. Systematic variations in task requirements will provide a basis for studying more and less invariant characteristics of teaching style which will generate variables that intervene between content and methodology, and individual and group behaviors of children.

Preschool Environment Inventory

Virginia Stern and Anne Gordon (Bank Street College of Education) developed a Preschool Environment Inventory to promote "a method for characterizing the school environment of children in Head Start and other preschool programs so as to relate children's behavior on tests and/or in the classroom to environment variables." Although the instrument is an expression of Bank Street's theoretical position of what is important in the education of young children, (from a developmental and psychodynamic approach) the scales and check lists are phrased in non-evaluative language. The Inventory consists of 23 checklists and 44 scales.

> The focus is on the teacher (her mode of teaching, the quality of her relationship with the children both individually or as a group, her teaching style), but we have also included the physical environment, materials and equipment, and the general atmosphere of the classroom. The predominance of items on the teacher's stance with respect to children's play and her utilization of play for stimulating cognitive behavior, stems from a conviction that play is an important medium for learning, a view shared by both psychoanalytic and development theorists.

The following index to the Inventory illustrates its breadth and scope: (1) Physical set-up, materials and equipment; (2) Play activities; (3) Program; structure, balance, organization; (4) Mode of teaching; (5) Teacher's role re language, communication, articulation of ideas and feelings; (6) Control and management; (7) Aspects of teacher's relationship with the children; (8) Teacher's role re peer relations; (9) Style and tone of teacher; and (10) Classroom atmosphere.

Now that an exhaustive and differentiated group of scales and check lists has been developed, the "next step is for several observers (singly and in pairs) to use the Inventory systematically in classrooms.... Experience [and discussion] should pinpoint where clarification is needed . . . . On the basis of these discussions, the Inventory will be refined, clarified, and trimmed."

> Upon completion of the final revision, determination can be made of the degree of training required to achieve satisfactory levels of interscorer agreement. The reliability of the scale will be assessed and its validity determined with this year's evaluation sample.

Observations of Teachers and Teaching

Two other projects on which Garfunkel worked were concerned with strategies and applications of observation of teachers and teaching. He developed and used a method of participant observation.

> Applications of modified participant observation approaches were made on selected Head Start and elementary school classes in connection with two projects, which were taking place concurrently. The first involved twenty Head Start classes. . . . The second was Project Concern, an experimental study of the effects of suburban education on inner-city children in and around Hartford, Connecticut. . . . The aims of these studies were twofold: (1) to study the relationship between selected characteristics of teacher style and changes in mental abilities, academic achievement, personal-social development and creativity of children in selected classrooms; (2) to describe, through cross-sectional procedures, teaching situations which Head Start children are exposed to and those to which they will most probably be exposed . . . if they attend inner-city or suburban elementary classrooms. . . .
>
> Scales were developed for both studies by observers after carefully and deductively describing contrasting characteristics of teaching situations which observers judged as being relatively unique. . . . The scales, are, therefore, a reflection of differences seen by observers, rather than the basis for making distinctions. This meant that this approach to studying teaching involved a concomitant study of observer variation, and that these two separate focuses were mutually interdependent. . ..
>
> In order to provide a superstructure for teaching and observing variations, films of selected classes were developed. In covering a wide range of activities, these films have and will continue to provide referent behaviors for the reports and ratings of observers. Extensive use of these films has been and is continuing to be made in order to clarify reductions of behavior that were made by observers. . . .
>
> Eight scales were used in rating nineteen teachers by six observers, with each teacher being rated by two, three, or four separate observers [in nineteen Head Start classes]. The scales were as follows: (1) Attitude towards teaching situation; (2) Teachers' differentiation of children and activities; (3) Predominant emphasis of curriculum; (4) Purposefulness of classroom behavior; (5) Control of materials and interactions; (6) Communication-responsiveness; (7) Work-play continuum; [and] (8) Overall rating.

> Rater agreement on the ten scales varied between 80% and 90%, and on the overall rating the agreement was 92%.
>
> [T]en scales were developed for rating 38 classes of Project Concern including kindergarten, first, second, third, and fifth grades in both inner-city and suburban school[s]. The observational team consisted of five observers with widely different backgrounds and points of view.... Scale derived areas[were] : (1) Involvement and interest of children; (2) Purposeful behavior of class; (3) Source of direction of academic activities; (4) Nature of control over behavior; (5) Effectiveness of behavioral controls; (6) Quality of presentation of subject and materials; (7) Differentiation of instruction; (8) Teacher reaction to classroom situation; (9) Reinforcement of behavior of children;[and](10) Nature of reinforcement....Rater agreement on individual scales, with the exception of scale 9 varied between .50 and .60. . . .
>
> Data obtained from scales was unequivocal in showing suburban classes to be uniformly superior to inner-city classes . . . . however 30% of the classes overlap, five suburban classes being below the median and six inner-city classes being above the median.

In concluding,Garfunkel described the next step to be taken:

> Preliminary findings from these studies document wide variations across Head Start inner-city and suburban classes. The obvious next step is to follow children who have been exposed to certain styles of teaching and to compare their responses to elementary schools that offer similar and contrasting classroom environments. This can serve as a control for predicting how high and low changes on various measurement procedures will respond to continuous and discontinuous learning environments. Of particular interest will be the interactions between Head Start and elementary school stylistic variations on selected measures of achievement and social-emotional behaviors.

Studies of Teacher-Child Interaction

Cognitive Interaction Between Teacher and Pupil

Hess, Shipman and Berry (University of Chicago) are investigating still other aspects of teacher-pupil interaction and their ongoing project focuses on analysis of the teacher's verbal behavior in the classroom. Their categories were derived from previous research on maternal teaching styles conducted by the principal investigators. The current project "attempted to develop the scales more systematically and apply them to teachers' classroom behavior in preschool situations. [The] emphasis is on cognitive interchange rather than love-hostility and autonomy-control dimensions."

> It is a methodological study, designed to provide an evaluation of the reliability and feasibility of the coding system under different environmental conditions and to establish the necessary controls for its use. . . .
>
> At present the seventeen transcripts [of class sessions] are being coded and analyzed. This is considered a trial coding and it is our intention to refine the categories as we proceed. . . . It will then be necessary to establish the practical viability and reliability of the categories. . . . When it has been ascertained that the coding categories can be used reliably by different judges, we will analyze them for internal consistency measures on individual teachers, for variations between teachers, and for variations related to activity areas and group structure in the classroom.
>
> Analysis of the data from the Head Start classes will allow assessment of the similarities and differences between the two observation schemata (i. e., between this coding system and the ORF) and provide more detailed analysis of one aspect of the teacher's behavior, her verbal behavior to the children.

The investigators noted that the OSCI reported earlier in this chapter has several aspects which can be incorporated into the coding scheme of this study and that instruments for observing and coding teacher behavior in the future might include "new codes which account for teacher behavior when she is not involved with a child."

Teacher-Child Interaction and Learning Response

Marcus (Tulane University) did a pilot study of teacher-child interaction and learning response in children who had completed first grade and been recommended as needing further help to prepare them for second grade. Comparable groups of Negro and white children constituted the experimental and control groups; all the children were measured on the Binet, the Vineland Social Maturity Scale, and reading achievement. Teachers were interviewed and observed and family and personal histories were obtained through home visits. The three experimental groups met in groups of ten children with a teacher for six weeks; the control group did not attend summer sessions. Marcus concluded:

> The stimulation offered by the program during the summer, however limited, was beneficial to those in the higher I.Q. groups. The low I.Q. experimental group did less well than its control, suggesting that the classroom level might have been too advanced for these students, thus producing a frustrating situation. A teacher who is firm in her attitudes, but understanding can focus on the subject matter to be taught without being overly personal with the students, and achieve excellent results in the learning progress. Overly permissive teachers may fail to supply the organization and discipline a child needs, especially when the children come from unorganized or disorganized homes and the learning suffers. The child who is "babied" at home is not helped by an overly personal approach by the teacher. Negro teachers who are reluctant to discipline white children will have to overcome this tendency; otherwise the learning process may suffer. Teachers are not always aware of their personality attitudes in teaching.

Marcus suggested four directions for further research:

> 1. Study the rate of progress in learning when the I.Q. spread is small and the stimulation is aimed more accurately to the child's own level. 2. Further exploration of the mixed race situation between teacher and student. 3. Educate Negro teachers in the potential pitfalls of teaching white children, to enable them to overcome the problem of inhibition or overreaction in relationships. 4. Study the use of more firm discipline in the classroom with disadvantaged children.

Approaches for Improving Teaching

Teacher Seminar

Alexanian (Boston University) initiated a "teacher seminar for the purpose of providing teachers with an opportunity to assess their experiences while working in Head Start agencies (school dominated, rural, urban, single purpose, multi-purpose)."

Eight participants who were head teachers in their own classrooms met once a week for seven consecutive weeks at Boston University. All seminars were taped. The teachers explored a variety of topics with a seminar leader. These topics included discussion of how they view their jobs, the relation of their past experience to their present work, the effect of teachers on the curriculum, "what Head Start is all about," and the lack of uniform program impact.

Teacher Developed Preschool Curriculum to Facilitate Grade One Reading Success

Mrs. Alexanian also initiated a "Teacher-Developed Preschool Curriculum to Facilitate Grade One Reading Success." The final data have not been collected.

> It was the hypothesis of this project that a community oriented readiness curriculum could be developed utilizing: 1) Community vocabulary and resource, 2) Knowledge of public school materials, vocabulary and expectation, 3) Skills which have a demonstrable effect on early reading success (National Grade One Reading Study). . . .
>
> The vehicles used to stimulate the teacher developed curriculum were: 1) Workshops for experimental teachers and their aides with specialists in curriculum areas (preschool language, reading, children's books, drama and community); 2) classroom support in the form of materials and demonstration.

The investigator made this point concerning curriculum and intervention: "The teacher must believe in and value the content before an intervention can become effective. The method of asking teachers to modify a curriculum to incorporate community characteristics, strengths and deficits leaves the impact and implementation on the shoulders of the teacher. This is in contrast to the introduction of pre-determined curriculum and materials."

Modification of Teacher Behavior

Modification of teacher behavior was demonstrated in a study by Cooper and Thomson(University of Kansas).

> This study was designed to develop a method of observing and modifying the frequency of teacher attention to appropriate child responses in two preschool classrooms. Two teachers with no formal training in reinforcement principles were observed for a baseline of eight days. Teacher A, with the lower baseline rate of attending to appropriate child responses, was selected to be trained first. Teacher B, served as a control for Trainer-Teacher interaction during the first part of the Training condition for Teacher A. Feedback during Training Phase I included the frequency of attentions given to appropriate child responses every ten minutes and the total percentages of attending to appropriate child responses at the end of the day. Training Phase II included feedback given during Phase I plus the frequency of unattended responses. Teacher B was trained in a similar way. Both teachers showed an increase in attending

> to appropriate child responses and a decrease in occurrences of unattended appropriate child responses. Attention to disruptive responses remained at about the same rate for both teachers during the study. The rates of attending to appropriate child responses increased more dramatically following feedback which included occurrences of unattended appropriate responses than when feedback was merely the number of times appropriate responses was attended. Higher rates of attending were maintained during the Probe than during Baseline.

The investigators observed that previous studies have indicated "social reinforcement in the form of teacher attention by itself may have minimal effects on lower-class preschool children. It may also account for the lack of change in appropriate child behavior during the Training condition in this study." They go on to say that "perhaps teachers of this population need to be trained to not only increase their rate of attending to appropriate child responses but to utilize the materials existing in the classrooms as reinforcers for desired behavior."

The following implications for teacher training were suggested by the investigators as a result of their study:

> First, this procedure could be used to sensitize teachers to the occurrence of many child responses and to train [teachers] to attend to it. This fact would suggest that it might also be used to train teachers to ignore specific responses. While the more specific parameters of such a procedure are not known, further investigation might serve to locate more efficient limits as well as essentials in using it. Secondly, it raises a question of the components of training. This study did not result in an increase of appropriate child responses and was not designed to focus on this aspect. If teachers were trained to discover effective reinforcers for each child as well as to use those reinforcers effectively, an increase of that behavior in every child in that classroom would more likely occur. If refinements and adaptations of this procedure should prove to be effective and efficient, it would seem that a useful means of training persons who work with children to become more discriminating and sensitive teachers could be developed.

Another study relating to modification of teacher behavior, is that of D. M. Mandel, "Influencing Attitudes of Parents and Teachers through Rewarding Children," which is discussed at the end of Chapter Nine on "Parents and Families."

Social Organization of Head Start Centers

The social organization of Head Start centers is an area of ongoing research by Horton at Bank Street College of Education. After a period of observation in several centers, six aspects were identified for study: (1) the internal organizational development of the Head Start centers; (2) teacher-parent relations in Head Start centers; (3) Head Start in relation to the family life of the participants; (4) the Head Start program of organizing parents for group action; (5) organizational relations between Head Start and the public schools; and (6) sponsorship and participation. On the basis of preliminary data some leading hypotheses and questions were formulated for each of these aspects to guide the next phase of research, that of beginning an intensive and comparative study of a small number of Head Start centers.

> Our method is intended to be primarily inductive, developing its theoretical formulations as it proceeds and refining them as new data are obtained, both from renewed observation of earlier centers, and from new observations at the centers to be added. One might describe this as a process of successive comparisons, in the course of which generalizations suggested in one case are tested on successive cases. In the course of the generalizing and testing process, one discovers what are the essential and comparable features (for these particular centers) and what are the variable conditions with respect to a given kind of interaction or structural change. This method has been described as the method of constant comparison. . . . The data are collected chiefly through participant-observation and informal interviewing.
>
> In a later section of this report, we present initial summaries and interpretations of data from the two centers now under observation . . ..The data are only partly parallel, and . . . they are still primarily descriptive. The next stage of the field work will be directed to filling out the comparisons, while concurrently the theoretical interpretation of this material is being carried forward and made progressively more systematic and integrated as a feedback control on the continuing data collection.

Clay's study (Boston University) of the utilization of non-professional interviewers (who were parents in her project) was discussed in Chapter Nine. Many of the questions and issued which she described relate to the problems of social organization of the centers.

APPENDIX

EVALUATION AND RESEARCH CENTERS

E & R CENTER	DIRECTOR(S)	LOCATION
Bank Street College of Education	Dr. Herbert Zimiles	69 Bank Street New York, New York 10014 212, 24[illegible]4903 X 14
Boston University	Dr. Frank Garfunkel	Boston, Massachusetts 02215 617, 262-4300 X 169
Michigan State University (Research:Merrill-Palmer Institute)	Dr. Sarah D. Hervey	Home Management House - Unit I East Lansing, Michigan 48823 517, 353-7999
Syracuse University	Dr. William J. Meyer	Syracuse, New York 13210 315, 476-5571 X 2298
Teachers College Columbia University	Dr. Robert L. Thorndike	New York, New York 10021 212, 870-4149
Temple University	Dr. Theron Alexander	444 Ritter Hall Philadelphia, Pa. 19122 215, 787-8066/67
Tulane University and	Dr. Shuell Jones	New Orleans, Louisiana 70118 504, 865-7711 X 393
Southern University	Dr. Edward E. Johnson	Baton Rouge, Louisiana 70813 504, 775-6300 X 340
U.C.L.A.	Dr. Carolyn Stern	Los Angeles, California 90024 213, 272-8911
University of Chicago	Dr. Robert Hess Dr. Virginia Shipman	5801 Kenwood Avenue Chicago, Illinois 60637 312, 643-1044 (Hess) 643-1111 (Shipman)
University of Hawaii	Dr. Dorothy C. Adkins	Honolulu, Hawaii 96822 808, 918-477 (call operator first)
University of Kansas	Dr. Frances Horowitz	Lawrence, Kansas 66045 913, 864-3081 842-2362
University of South Carolina	Dr. Myles I. Friedman	Columbia, South Carolina 803, 765-4265
University of Texas	Dr. John Pierce-Jones	Austin, Texas 78712 512, 471-1361

Bank Street College of Education

Development of the Matrix Test

Herbert Zimiles

Studies of the Social Organization of Head Start Centers

Donald Horton, Carla Drije

An Experimental Approach to Studying Non-Verbal Representation in Young Children

Margery Franklin, Judith Cobb

Development of Observation Procedures for Assessing Preschool Classroom Environment

Virginia Stern, Anne Gordon

Evaluation of a Cognitive-Tutorial Procedure for Use in Preschool Programs for Deprived Children

Renee Reens

Comparative Item-Content Analysis of Achievement Test Performance in Young Children

Herbert Zimiles

Boston University

Teaching Style: The Development of Teaching Tasks

Observation of Teachers and Teaching: Strategies and Applications

Observational Strategies for Obtaining Data on Children and Teachers in Head Start Classes (OSOD)

Frank Garfunkel

Primary and Secondary Prevention: Studying Clinical Process and Disturbance with Preschool Children

Frank Garfunkel, Caroline Fish, Pierre Johannet, Anne Coolidge

Perception of Emotion: Race and Sex Differences of Perceivers and Expressors

George Gitter

The Expression of Aggression in Preschool Children

Lynn Dorman

The Effects of a Teacher Developed, Preschool Language Training Program on First Grade Reading Achievement

Sandra Alexanian

Training for Number Concept

A. H. Blum

Preferences Among Qualitatively Differing Uncertainties

D. Mostofsky

The Utilization of Non-Professional Interviewers in the New England and Mississippi Samples by the Boston University Head Start Evaluation and Research Program, 1966-1967

Suzanne Clay

Teacher Seminar

Sandra Alexanian

Michigan State University and Merrill-Palmer Institute

Modification of Classificatory Competence and Level of Representation among Lower-Class Negro Kindergarten Children

I. E. Sigel, Patricia Olmsted

Developmental Studies in Egocentricism: I. Violation of Expectancies

Carolyn U. Shantz, J. S. Watson

Bidimensional Attention in Lower-and Middle-Class Preschool Children: A Developmental Study

J. S. Watson

A Training Study in Object Related Fluency

I. E. Sigel, Elizabeth Ireland, J. S. Watson

Exploratory Studies in Creativity

Marjorie Clos, Felicisima Serafica

Family Aspirations and Expectation

Hyman Rodman, Patricia Voydanoff

The Dynamics of the Husband-Wife Relationship

Constantina Safilios-Rothschild

Parent-Child Interactions, Attitudes and Locus of Control

I. E. Sigel, Bela Feher, Patricia Olmsted

Early Environmental Stimulation

J. S. Watson

Southern University and Tulane University

The Role of Incentives in Discrimination Learning of Children with Varying Preschool Experience

Melvyn Berke

Variables Affecting Children's Perceptions of Racially Related Stimuli

John Stabler

Analyses of Vocabularies of Various Cultural and Age Groups

Degree of Overlap of Free Association Responses of Different Cultural Groups

Arthur Irion

A Pilot Study of Teacher-Student Interaction and the Learning Response

Irwin M. Marcus

Syracuse University

Experiments in Grammatical Processing in Children

Murray S. Miron, Vernon Hall, Michael Mery

Acquisition and Transfer Differences between Kindergarten and Second-Graders on Aurally and Visually Presented Paired-Associates Using an A-B, A-C Design

Vernon C. Hall

Concept Identification Strategies

William J. Meyer, David Hultsch

Fear and Attachment in Young Children

J. Conrad Schwarz

Evaluating Behavioral Change during a Six-Week Pre-Kindergarten Intervention Experience

Lois Hayweiser, David Massari, W. J. Meyer

Variables Affecting the Performance of Young Children on a Letter Discrimination Task

Vernon C. Hall, Edward Caldwell, Gwen Simpson

Teachers College, Columbia University

Item Analysis of Evaluation Tests

Robert Thorndike, Marvin Sontag

Comparison of Age-Matched Group

Marvin Sontag, Adina Sella

Follow-up of Children Enrolled in a Pre-Kindergarten Program

Marvin Sontag, Adina Sella

Children's Conceptual Development and Language Comprehension

Janellen Huttenlocher

Exploratory Work on Block-Building as a Cognitive Indicator

Millie Almy, Marvin Sontag, Adina Sella

Temple University

A Study of Family Influences on the Education of Negro Lower-Class Children

Robert R. Bell

A Study of Cognitive and Social Functioning

E. Kuno Beller

A Study of the Attitudes of Parents of Deprived Children

E. Kuno Beller

University of California at Los Angeles

An Experimental Investigation of the Use of Dialect vs. Standard English as a Language of Instruction

Evan R. Keislar

Cooperative and Competitive Behavior of Preschool Children as a Function of Reward Condition, Sex, and Ethnic Background

Group vs. Individual Reward Contingencies as a Measure of Differences in Cooperation and Competition in Preschool Children of Different Socio-Economic Backgrouns

A Cross-Cultural Comparison of Cooperative and Competitive Behavior in Kibbutz and Urban Children in Israel

Millard Madsen

Effect of Parent Participation in Head Start on Subsequent Utilization of Community Resources

Measurement of Changes in Parental Feelings of Alienation as a Result of Participation in Head Start

The Value of Special Instruction in Producing More Effective Modes of Home Teaching in Parents of Disadvantaged Children

Harry Kitano

Echoic Responding of Disadvantaged Preschool Children as a Function of Type of Speech Modeled

Evaluating Language Curricula for Preschool Disadvantaged Children

Carolyn Stern

An Instrument to Measure Visual Discrimination of Young Children

Carolyn Stern, Avima Lombard

Effectiveness of Instruction in Puzzle-Assembly Skills with a Head Start Population

Avima Lombard

University of Chicago

Maternal Influences upon Development of Cognition

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